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MINISTRY OF IRRIGATION AND POWER

(Central Electricity Board)

NOTIFICATION

New Delhi, the 10th June 1954

S.R.O. 2523.—The following draft of certain rules which the Central Electricity Board propose to make in exercise of the powers conferred by section 37 of the Indian Electricity Act, 1910 (IX of 1910), is published as required by sub-section (1) of section 38 of the said Act, for the information of persons likely to be affected thereby, and notice is hereby given that the said draft will be taken into consideration after the 5th November, 1954.

Any objection or suggestion which may be received by the Secretary, Central Electricity Board, Ministry of Irrigation and Power, New Delhi from any person with respect to the said draft before the date specified will be considered by the Central Electricity Board.

INDIAN ELECTRICITY RULES (DRAFT)

CHAPTER I

PRELIMINARY

1. Short Title, Extent and Commencement.—(1) These rules may be called the Indian Electricity Rules, 1954.

(2) They shall come into force at once.

2. Definitions.—(1) In these rules, unless the context otherwise requires,

- (a) "the Act" means the Indian Electricity Act, 1910;
- (b) "accessible" means within physical reach without the use of any appliance;
- (c) "ampere" means a unit of electric current and is the unvarying electric current which when passed through a solution of nitrate of silver in water, in accordance with the specification set out in Annexure I, deposits silver at the rate of 0.001118 of a gramme per second;

The aforesaid unit is equivalent to the current which, in passing through the suspended coil of wire forming part of the instrument marked "Government of India Ampere Standard Verified" when the suspended coil is in its sighted position, exerts a force which is exactly balanced by the force exerted by gravity in Calcutta on the counter balancing iridioplatinum weight of the said instrument;

- (d) "Annexure" means an Annexure to these rules;
- (e) "apparatus" means electrical apparatus and includes all apparatus, machines and fittings in which conductors are used, or of which they form a part;

- (f) "bare" means not covered with insulating material;
- (g) "cable" means a length of insulated single conductor (solid or stranded) or of two or more such conductors, each provided with its own insulation, which are laid up together. Such insulated conductor or conductors may or may not be provided with an overall metallic covering;
- (i) "flexible cable" means a cable consisting of one or more cores each formed of a group of wires, the diameter and the physical properties of the wires and the insulating material being such as to afford flexibility;
- (ii) "trailing cable" means a cable designed and constructed to suit the requirement of the portable or transportable apparatus for which it is used;
- (h) "circuit" means an arrangement of conductor or conductors for the purpose of conveying energy and forming a system or a branch of a system;
- (i) "circuit breaker" means a switch designed for opening automatically a circuit under abnormal conditions;
- (j) "concentric system" means a system in which the conductor called the inner conductor is insulated and in which the circuit is completed through one or more conductors called the outer conductors which are insulated from one another and are disposed over the insulation of, and more or less completely round, the inner conductor;
- (k) "conductor" means any wire, cable, bar, tube, rail or plate used for conducting energy and so arranged as to be electrically connected to a system;
- (l) "conduit" means rigid or flexible metallic tubing or mechanically strong and fire resisting non-metallic tubing into which a cable or cables may be drawn for the purpose of affording it or them mechanical protection;
- (m) "covered with insulating material" means adequately covered with insulating material of such quality and thickness as to prevent danger;
- (n) "cut-out" means any appliance for automatically interrupting the transmission of energy through any conductor when the current rises above a predetermined amount, and shall also include fusible cut-out;
- (o) "danger" means danger to health or danger to life or any part of body from shock, burn, or other injury to persons, or property or from fire or explosion, attendant upon the generation, transmission, transformation, conversion, distribution or use of energy;
- (p) "dead" means at or about earth potential and disconnected from any live system;

Provided that, apparatus separated from a live conductor by a spark gap shall not be deemed to be "dead";

NOTE.—The term 'dead' is used only with reference to current carrying parts when these parts are not live.

- (q) "distributing licensee" means a licensee who obtains from another licensee or other source a supply of energy in bulk for distribution;
- (r) "earthed" or "connected with earth" means connected with the general mass of earth in such manner as to ensure at all times an immediate discharge of energy without danger;
- (s) "earthing system" means an electrical system in which all the conductors are earthed;
- (t) "electrician" means a person over 21 years of age who is competent for the purposes of the rule in which the term is used and who has been appointed in writing by the lessee, owner, agent or manager of any installation;
- (u) "Government" means the Central or a State Government as the case may be;

- (v) "guarded" means covered, shielded, fenced or otherwise protected by means of suitable casings, barrier, rails or metal screens to remove the possibility of dangerous contact or approach by persons or objects to a point of danger;
 - (w) "Inspector" means an Electric Inspector appointed under Section 36;
 - (x) "Inspector of Mines" means an Inspector appointed under the Indian Mines Act, 1923 (IV of 1923);
 - (y) "installation" means any electrical composite unit used for the purpose of generating, transforming, transmitting, converting, distributing or utilizing energy;
 - (z) "intrinsically safe" means incapable of causing an explosion of inflammable gas or vapour;
 - (aa) "lightning arrestor" means a device which has the property of diverting to earth any electrical surge of excessively high amplitude applied to its terminals and is capable of interrupting follow current if present and restoring itself thereafter to its original operating conditions.
 - (ab) "live" means electrically charged;
 - (ac) "metallic covering" means mechanically strong metal covering surrounding one or more conductors;
 - (ad) "multiple earth" means the earthing of the neutral or middle conductor of a system at more than one point;
 - (ae) "neutral conductor" means that conductor of a multi-wire system, the voltage of which is normally intermediate between the voltages of the other conductors of the system;
 - (af) "non-licensee" means a person generating supplying, transmitting or using energy to whom any of the provisions of Part III of the Act apply;
 - (ag) "ohm" means a unit of electric resistance and is the resistance offered to an unvarying electric current by a column of mercury at the temperature of melting ice 14.4521 grammes in mass of an uniform cross-sectional area and of a length of 106.3 centimeters;
- The aforesaid unit is represented by the resistance between the terminals of the instrument marked "Government of India Ohm Standard Verified" to the passage of an electric current when the coil of wire forming part of the aforesaid instrument and connected to the aforesaid terminals is in all parts at a temperature of 30° C;
- (ah) "open sparking" means sparking which owing to the lack of adequate provisions for preventing the ignition of inflammable gas external to the apparatus would ignite such inflammable gas;
 - (ai) "overhead line" means any electric supply-line which is placed above ground and in the open air;
 - (aj) "owner", "agent" or "manager" of a mine have the same meanings as are assigned to them in section 3(g), 3(a), and 15(1) respectively, of the Indian Mines Act, 1923;
 - (ak) "portable" means so designed as to be capable of being moved while in operation;
 - (al) "portable hand lamp" means a portable light-fitting provided with suitable handle, guard and flexible cord connected to a suitable plug;
 - (am) "section" means a section of the Act;
 - (an) "span" means the horizontal distance between two adjacent supporting points of an overhead conductor;
 - (ao) "street box" means a totally enclosed structure either above or below ground containing apparatus for transforming, switching, controlling or otherwise regulating energy;

- (ap) "enclosed sub-station" means any premises or enclosure or part thereof, being large enough to admit the entrance of a person after the apparatus therein is in position, containing apparatus for transforming or converting energy to or from a voltage at or above medium voltage (other than transforming or converting solely for the operation of switchgear or instruments) with or without any other apparatus for switching, controlling or otherwise regulating the energy, and include the apparatus therein;
 - (aq) "switchgear" means switches, circuit breakers, cut-outs and other apparatus used for the operation, regulation and control of circuits;
 - (ar) "enclosed switch station" means any premises or enclosure or part thereof, being large enough to admit the entrance of a person after the apparatus therein is in position, containing apparatus for switching, controlling or otherwise regulating energy at or above medium voltage but not for transforming or converting energy (other than transforming or converting solely for the operation of switchgear or instruments), and includes the apparatus therein;
 - (as) "system" means an electrical system in which all the conductors and apparatus are electrically connected to a common source of electric supply;
 - (at) "transportable apparatus" means apparatus which is operated in a fixed position but which is so designed as to be capable of being moved readily from one place to another;
 - (au) "volt" means a unit of electro-motive force and is the electric pressure which, when steadily applied to a conductor whose resistance is one ohm will produce a current of one ampere;
 - (av) "voltage" means the difference of electric potential measured in volts between any two conductors or between any part of either conductor and the earth as measured by a suitable voltmeter, and is said to be:
 - "low" where the voltage does not exceed 250 volts under normal conditions subject, however, to the percentage variation allowed by these rules;
 - "medium" where the voltage does not exceed 650 volts under normal conditions subject, however, to the percentage variation allowed by these rules;
 - "high" where the voltage does not exceed 33,000 volts under normal conditions subject, however, to the percentage variation allowed by these rules;
 - "extra high" where the voltage exceeds 33,000 volts under normal conditions subject, however, to the percentage variation allowed by these rules.
- (2) All other words and expressions used herein and not defined shall have the meanings respectively assigned to them in the Act.

3. Authorization.—(1) A licensee, a non-licensee or a consumer, or the owner, agent or manager of a mine, or the agent of any company operating in an oil field or the owner of a drilled well in an old field or a contractor for the time being under contract with a licensee, a non-licensee or a consumer to carry out duties incidental to the generation, transformation, distribution or use of energy may authorize any person for the purpose of any or all of the following namely:—sub-rules (1) and (2) of rule 35, rule 36, clause (a) of sub-rule (1) of rule 52, clause (a) of sub-rule (1) of rule 65, sub-rule (2) of rule 110, sub-rule (1) of rule 121, sub-rule (4) of rule 123, rule 124 and clause (b) of sub-rule (7) of rule 125.

(2) No person shall be authorized under sub-rule (1) unless he is competent to perform the duties specified in the rules for the purpose of which he is authorized.

(3) No person shall be deemed to be authorized under sub-rule (1) unless his name has been entered in a list maintained at the office or premises of the person authorizing him, and giving the purposes for which such person is authorized and the entry has been attested by the authorized person and the person authorizing him.

(4) Every list maintained under sub-rule (3) shall be produced before an Inspector when required.

CHAPTER II

INSPECTORS

4. Qualifications of Inspectors.—No person shall be appointed to be an Inspector unless—

- (a) he possesses a degree or diploma in Electrical Engineering from a recognised University or College or qualifications equivalent to such degree or diploma; and
- (b) he has been regularly engaged for a period of at least eight years in the practice of electrical engineering of which not less than two years have been spent in an electrical or mechanical engineering workshop or in generation, transmission, or distribution of electricity, in a position of responsibility.

5. Entry and Inspection.—(1) Any Inspector or any officer appointed to assist an Inspector may enter, inspect and examine any place, carriage or vessel in which he has reason to believe that there is any appliance or apparatus used in the generation, transmission, conversion, distribution or use of energy and may carry out tests therein.

(2) Every licensee, non-licensee, or other supplier of energy, consumer, owner and occupier shall afford at all times all reasonable facilities to any such Inspector or officer to make such examinations and tests as may be necessary to satisfy himself as to the due observance of the provisions of the Act, the terms of the licence (if any) and these rules.

(3) Every licensee, non-licensee, other supplier of energy or owner of a generating station or of a high or extra-high voltage installation shall, if required so to do by an Inspector, provide reasonable means for carrying out all tests, prescribed by or under the Act, of the appliances or apparatus used for the supply or use of energy by him as the case may be.

(4) An Inspector, or any officer appointed to assist an Inspector under sub-rule (1) and holding gazetted rank, may serve an order in the form set out in Annexure VIII, upon any licensee, non-licensee, other supplier of energy, consumer, owner or occupier, calling upon him to comply with any specified rule and the person so served shall thereupon comply with the order within the period named therein, and shall report in writing to the Inspector when the order is complied with:

Provided that, if within the period specified in the aforesaid order an appeal is filed against the order, the appellate authority may suspend its operation pending the decision of the appeal.

6. Appeals.—(1) An appeal against an order served under sub-rule (4) of rule 5 shall lie—

- (a) if the order is served by an officer appointed to assist an Inspector, to the Inspector;
- (b) if the order is served by an Inspector, or in the case of an order of an Inspector against an appeal preferred to him under clause (a) to the Central Government or the State Government, as the case may be.

(2) Every appeal shall be in writing, shall be accompanied by a copy of the order appealed against and shall be presented within three months of the date of the service of such order.

7. Amount of fees.—(1) The fees set out in Annexure II shall be payable in respect of the services therein mentioned where the tests are carried out by comparison with the Government of India Standards referred to in sub-rule (1) of rule 2.

(2) The Central Government or the State Government, as the case may be, may levy such fees for testing and inspection and generally for the services of Inspectors as it may from time to time by general or special order, direct; and may, if it thinks fit, remit any fee or any portion thereof.

8. Incidence of fees.—Where an Inspector is called in to decide any difference or dispute and where a fee for such service is recoverable, the Inspector shall decide by whom such fee shall be payable.

9. Submission of records.—An Inspector may require a licensee, non-licensee, others supplier of energy or an owner to submit to him for examination any records of tests made in connection with his works and he shall comply with such requisition. Similarly, a licensee, non-licensee, other supplier of energy or an owner may require the Inspector to submit to him for examination any records of tests made by the Inspector in connection with his works and the Inspector shall comply with such requisition.

10. List of consumers.—An Inspector may require a licensee, non-licensee or other supplier of energy to submit to him a list of all persons supplied with energy by him and of the addresses at which such energy is supplied and the licensee, non-licensee or other supplier of energy shall comply with such requisition.

CHAPTER III

LICENCES

11. Applications for licences.—(1) Every application for a licence shall be signed by or on behalf of the applicant and addressed to such officer as the State Government may designate in this behalf and it shall be accompanied by—

- (a) six copies, in print, of the draft licence as proposed by the applicant, with the name and address of the applicant, and of his agent (if any), printed on the outside of the draft;
- (b) three copies, each signed by the applicant, of maps of the proposed area of supply and of the streets or roads in which the supply of energy is to be compulsory which shall be so marked or coloured as to define any portion of such area and streets or roads which are under the administrative control of any local authority and shall be on a scale—
 - (i) of not less than six inches to a mile, or
 - (ii) if no such maps are available, of not less than that of the largest scale ordnance maps available, or
 - (iii) on such other scales as may be approved by the State Government;
- (c) a list of any local authorities invested with the administration of any portion of the area of supply;
- (d) an approximate statement describing any lands which the applicant proposes to acquire for the purpose of the licence under the provisions of the Land Acquisition Act, 1894 (I of 1894);
- (e) an approximate statement of the capital proposed to be expended in connection with the undertaking and such other particulars as the State Government may require;
- (f) if the applicant is a Company which is registered under any of the enactments relating to Companies for the time being in force in India or is a Corporation by an Act of the Parliament, a copy of the Memorandum and Articles of Association; and
- (g) a treasury receipt for such fee not exceeding fifteen hundred rupees as the State Government may require, paid into a Government treasury in the state concerned, unless such fee is remitted, wholly or in part, by general or special order of the State Government.

(2) If the application for a licence is rejected or if a licence is revoked under sub-section (3) of section 4 as to the whole or any part of the area of supply, the State Government may at its discretion refund, wholly or in part, the fee referred to in clause (g) of sub-rule (1).

12. Copies of maps and draft licence for public inspection.—The applicant shall deposit at his own office and of his agents (if any) and at the office of every local authority invested with the administration of any portion of the proposed area of supply—

- (a) copies of the maps referred to in clause (b) of sub-rule (1) of rule 11 for public inspection; and
- (b) a sufficient number of copies of the draft licence to be furnished to all persons applying for them at a price not exceeding four annas per copy.

13. Contents of draft licence.—The draft licence shall contain the following particulars namely:—

- (a) a short title descriptive of the proposed undertaking together with the address and description of the applicant, or in the case of a firm, the names of all the directors or partners of the firm;
- (b) a statement of the boundaries of the proposed area of supply;
- (c) if the generating station is situated or is to be situated outside the area of supply or if any intervening area not included in the area of supply is to be crossed, a list of the streets not included in the area of supply along or across which electric supply-lines are to be laid down or placed;
- (d) the proposed conditions of supply, the nature and amount of the supply (if limited) and the like;
- (e) a list of the streets (if any) which are repairable neither by the Central or the State Government nor by a local authority and of the railways and tramways (if any) the soil or pavement of which the applicant seeks powers to open or break up, and the names of the persons or designations of authorities by whom such streets are repairable or who are for the time being entitled to work such railways or tramways;
- (f) the proposed periods after which the right to purchase is to take effect;
- (g) a statement of any special terms of purchase or orders proposed to be made under section 10; and
- (h) any proposed modification of the Schedule to the Act to be made under clause (f) of sub-section (2) of Section 3.

14. Form of draft licence.—The form of draft licence contained in Annexure III may, with such variation as the circumstances of each case require, be used for the purposes of rule 11 and, if used, shall be sufficient.

15. Advertisement of application and contents thereof.—(1) The applicant shall, within fourteen days from the submission of the application under rule 11, publish notice of his application by public advertisement, and such advertisement shall publish such particulars as the State Government may specify.

(2) The advertisement shall be headed by a short title corresponding to that given at the head of the draft licence and shall give the addresses of the offices at which, under rule 12, copies of maps therein referred to may be inspected and the copies of draft licence perused or purchased and shall state that every local authority, company or person, desirous of making any representation with reference to the application to the State Government, may do so by letter addressed to such officer as the State Government may designate in this behalf, within three months of the date of issue of the first advertisement.

(3) The advertisement shall be inserted by the applicant in at least two successive issues of such newspaper as the State Government, having regard to its circulation among persons likely to be interested, may direct, and in the absence of any such direction, in at least two successive issues of any newspaper published within the proposed area of supply or if there is no such newspaper, in any newspaper published within the State.

(4) The applicant shall send a copy of each of the two successive issues of the newspaper containing the advertisement to such officer as the State Government may designate in this behalf as soon as the second issue has appeared and the State Government shall, publish the advertisement at least once in the official gazette within six weeks from the date of the first advertisement published under sub-rule (3):

Provided that, any failure or delay on the part of the State Government in publishing the advertisement shall not of itself preclude the grant of a licence.

16. Amendment of draft licence.—Any person who desires to have any amendment made in the draft licence shall deliver a statement of the amendment to the applicant and to such officer as the State Government may designate in this behalf within the time allowed under sub-rule (2) of rule 15 for the submission of representations referring to the application.

17. Local inquiries.—If any person locally interested objects to the grant of a licence applied for under the Act, the State Government shall, if either the applicant or the objector so desires, cause a local inquiry to be held of which the notice in writing shall be given to both the applicant and the objector:

Provided that, the State Government may refuse such an inquiry if in its opinion the objection is of a trifling or vexatious nature.

18. Approval of draft licence.—When the State Government has approved a draft licence, either in its original form or in a modified form, such officer as the State Government may designate in this behalf shall inform the applicant of such approval and of the form in which it is proposed to grant the licence.

19. Notification of grant of licence.—On receiving an intimation in writing from the applicant that he is willing to accept a licence in the form approved by the State Government, the State Government shall publish the licence within two months by a notification in the official gazette, together with a statement that it has been granted.

20. Date of commencement of licence.—The date of a notification under rule 19 shall be deemed to be the date of commencement of the licence.

21. Deposit of maps.—When a licence has been granted, three sets of maps showing, as regards such licence, the particulars specified in clause (b) of sub-rule (1) of rule 11 shall be signed and dated to correspond with the date of the notification of the grant of the licence by such officer as the State Government may designate in this behalf. One set of such maps shall be retained by the said officer as the deposited maps and of the remaining two sets, one shall be furnished to the State Electricity Board and the other to the licensee.

22. Deposit of printed copies.—(1) Every person who is granted a licence, shall within thirty days of the grant thereof—

- (a) have adequate number of copies of the licence printed;
- (b) have adequate number of maps prepared showing the area of the licence and the compulsory areas;
- (c) arrange to exhibit a copy of such licence and maps for public inspection at all reasonable times at his head office, his local offices (if any), and at the office of every local authority within the area of supply.

(2) Every such licensee shall, within the aforesaid period of thirty days supply free of charge one copy of the licence and the relevant maps to every local authority within the area of supply and shall also make necessary arrangements for the sale of printed copies of the licence to all persons applying for the same, at a price not exceeding annas four per copy.

23. Application for written consent of State Government in certain cases.—If a licensee desires the written consent of the State Government under sub-section (3) of Section 12 to enable him to open or break up the soil or pavement of any street (which is repairable neither by the Central or the State Government nor by a local authority), or any railway or tramway, he shall apply for such consent in writing to such officer as the State Government may designate in this behalf and shall describe accurately the street, railway, or tramway, which he seeks power to open or break up and the names of the persons or designations of the authorities by whom such street is repairable or who are for the time being entitled to work such railway or tramway; and the extent to which he proposes to open or break up the same.

24. Amendment of licence.—(1) If a licensee desires that any alterations or amendments should be made in the terms and conditions of his licence under clause (b) of sub-section (3) of Section 4, he shall submit a written application to the officer designated by the State Government under rule 11 and shall within fourteen days from the submission of the application publish notice of his application by public advertisement; and the provisions of sub-rules (2), (3), and (4) of rule 15 shall apply to such publication.

(2) When the State Government has approved of the alteration or amendments either in the form proposed by the licensee or in any other modified form which he accepts, it shall notify the alterations or amendments as so approved, in the official gazette.

25. Sale of plans.—Copies of plans or sections such as are referred to in clause XVI of the Schedule to the Act shall be supplied by the licensee to every applicant at a price not exceeding one rupee per square foot.

26. Preparation and submission of accounts.—(1) Every licensee, unless exempted under section 11, shall cause the accounts of his undertaking to be made up to the thirty-first day of March.

(2) Such licensee shall prepare and render an annual statement of his accounts in accordance with the provisions of section 11 within a period of six months from the aforesaid date, or such extended period as the State Government may authorize after it is satisfied that the time allowed is insufficient owing to any cause beyond the control of the licensee; and the statement shall be rendered in quadruplicate if the State Government so desires.

(3) The accounts shall be made up in the prescribed forms set out in Annexure V and shall be rendered in Indian currency.

(4) The State Government may, by special or general order, direct that in addition to the submission of the annual statements of accounts in the forms prescribed in sub-rule (3), a licensee, shall submit to the State Government or such other authority as it may appoint in this behalf such additional information as it may require for the purpose.

27. Forms of certain requisitions—Requisitions under sub-clause (4) of clause V or sub-clause (5) of clause VI as the case may be, of the Schedule to the Act shall be made in the form set out in Annexure VI or Annexure VII.

CHAPTER IV

GENERAL SAFETY PRECAUTIONS

28. Construction, installation, protection and maintenance of electric supply lines and apparatus.—All electric supply lines and apparatus shall be sufficient in power and size and of sufficient mechanical strength for the work they may be required to do, and, so far as is practicable, shall be so constructed, installed, protected, worked and maintained as to prevent danger.

29. Service lines and apparatus on consumer's premises.—(1) The licensee non-licensee or other supplier of energy shall ensure that all electric supply lines, wires, fittings and apparatus belonging to him or under his control which are on a consumer's premises are in a safe condition and in all respects fit for supplying energy, and the licensee, non-licensee or other supplier of energy shall take due precautions to avoid danger arising on such premises from such supply lines, wires, fittings and apparatus.

(2) Service-lines placed by a licensee, non-licensee or other supplier of energy on the premises of a consumer which are underground or which are accessible shall be so insulated and protected by the licensee, non-licensee or other supplier of energy as to be secure under all ordinary conditions against electrical, mechanical, chemical or other injury to the insulation.

(3) The consumer shall, as far as circumstances permit, take precautions for the safe custody of the equipments on his premises belonging to the licensee, non-licensee or other supplier of energy.

(4) The consumer shall also ensure that the installation under his control is maintained in a safe condition.

30. Cut-out on consumer's premises.—(1) A licensee, non-licensee or other supplier of energy shall provide a suitable cut-out in each conductor of every service-line other than an earthed or earthed neutral conductor or the earthed external conductor of a concentric cable within a consumer's premises, in an accessible position at the point of commencement of supply as defined under rule 59. Such cut-out shall be contained within an adequately enclosed fire-proof receptacle.

Where more than one consumer is supplied through a common service-line, each such consumer shall be provided with an independent cut-out at the point of junction to the common service.

(2) The owner of every electric supply line, other than the earthed or earthed neutral conductor of any system or the earthed external conductor of a concentric cable shall, protect it by a suitable cut-out.

31. Identification of earthed and earthed neutral conductors and positions of switches and cut-outs therein.—No cut-out, link or switch other than a linked switch arranged to operate simultaneously on the earthed or earthed neutral conductor and live conductors shall be inserted or remain inserted in any earthed

or earthed neutral conductor of a two-wire system or in any earthed or earthed neutral conductor of a multi-wire system or in any conductor connected thereto with the following exceptions:—

- (a) a link for testing purposes, or
- (b) a switch for use in controlling a generator or transformer.

32. Earthed terminal on consumer's premises.—(1) A licensee, non-licensee or other supplier of energy shall provide and maintain on the consumer's premises for the consumer's use one suitable earthed terminal in the case of low voltage installation and two such separate and distinct terminals in the case of medium, high or extra-high voltage installation in an accessible position at or near the point of commencement of supply as defined under rule 59:

Provided that, in the case of medium, high or extra-high voltage installation the second earthed terminal may not be provided by the licensee, non-licensee or other supplier of energy where the consumer has already provided or elects to provide his own earthing arrangements:

Provided further that, the consumer shall take all reasonable precautions to prevent mechanical damage to the earthed terminal and its lead.

Provided also that, the licensee, non-licensee or other supplier of energy may not provide any earthed terminal in the case of installations already connected to his system on or before the date to be specified by the State Government in this behalf if he is satisfied that the consumer's earthing arrangement is efficient.

(2) The licensee, non-licensee or other supplier of energy may, recover from the consumer the cost of installation of such earthed terminal on the basis laid down in sub-rule (2) of rule 82.

33. Accessibility of bare conductors.—Where bare conductors are used in building, the owner of such conductors shall—

- (a) ensure that they are inaccessible;
- (b) provide in readily accessible position switches for rendering them dead whenever necessary; and
- (c) take such other safety measures as are considered necessary by the Inspector.

34. Caution notices.—The owner of every medium, high and extra-high voltage installation shall affix permanently in a conspicuous position a caution notice of a type approved by the Inspector in Hindi and the local language of the district on—

- (a) every motor, generator, transformer and other electrical plant and equipment together with apparatus used for controlling or regulating the same;
- (b) all supports of high and extra-high voltage overhead lines;
- (c) luminous tube sign requiring high voltage supply, X-ray and similar high-frequency installations:

Provided that, where it is not possible to affix such notices on any generator, motor, transformer or other apparatus, they shall be affixed as near as possible thereto:

Provided further that, where the generator, motor, transformer or other apparatus, is within an enclosure, one notice affixed to the said enclosure shall be sufficient for the purposes of this rule.

35. Handling of Electric Supply Lines and Apparatus.—(1) Any conductor or apparatus to be handled shall first be disconnected from all sources of supply. After disconnection, adequate precautions shall be taken before handling by earthing or other suitable means, to discharge electrically such conductor or apparatus and any adjacent conductor or apparatus if there is danger therefrom (which should be similarly disconnected from supply) and to prevent any conductor or apparatus from being accidentally or inadvertently electrically charged when persons are working thereon:

Provided that, this sub-rule shall not apply to cleaning of commutators and slip rings working at low or medium voltage.

(2) No person shall work on any live electric supply line or apparatus and no person shall assist such person on such work, unless he is authorized in that behalf, and takes the safety measures approved by the Inspector.

(3) Every telecommunication line on supports carrying a high or extra-high voltage line shall, for the purpose of working thereon, be deemed to be a high voltage line.

36. Repairs to apparatus.—No repair to any part of any apparatus shall be effected while the part is live, except by an authorized person.

37. Supply to vehicles, cranes, etc.—Every person owning a vehicle travelling crane or the like to which energy is supplied from an external source shall ensure that it is efficiently controlled by a suitable switch enabling all voltage to be cut off in one operation and, where such vehicle, travelling crane or the like runs on metal rails, the owner shall ensure that the rails are electrically continuous and earthed.

38. Cables for portable apparatus.—(1) Training cables shall not be used for portable motors, generators, transformers, rectifiers, electric drills, electric sprays, welding sets or any other apparatus unless they are specially flexible, heavily insulated and adequately protected from mechanical injury.

(2) Where the protection is by means of metallic covering, the covering shall be in metallic connection with the frame of any such apparatus and earth.

39. Cables protected by bituminous materials.—(a) Where a licensee, non-licensee, other supplier of energy or owner has brought into use an electric supply line (other than an overhead line) which is not completely enclosed in a continuous metallic covering connected with earth and is insulated or protected in situ by compensation or material of a bituminous character—

(i) any pipe, conduit or the like into which such electric supply line may have been drawn or placed shall, unless other arrangements are approved by the Inspector in any particular case, be effectively sealed at its point of entry into any street box so as to prevent any flow of gas to or from the street box; and

(ii) such electric supply line shall be periodically inspected and tested where accessible, and the result of each such inspection and test shall be duly recorded by the licensee, non-licensee or other supplier of energy.

(b) It shall not be permissible for the licensee, non-licensee or other supplier of energy after the coming into force of these rules to bring into use any further electric supply line as aforesaid which is insulated or protected in situ by any composition or material known to be liable to produce noxious or explosive gases on excessive heating.

40. Street boxes.—(1) Street-boxes shall not contain gas pipes, and precautions shall be taken to prevent as far as reasonably possible any influx of water or gas.

(2) Where electric supply lines forming part of different systems pass through the same street box they shall be readily distinguishable from one another and all electric supply lines at high voltage in street boxes shall be adequately supported and protected so as to prevent risk of damage to or danger from adjacent electric supply lines.

(3) All street boxes shall be regularly inspected for the purpose of detecting the presence of gas and if any influx or accumulation is discovered the owner shall give immediate notice to any authority or company who have gas mains in the neighbourhood of the street-box and in cases where a street box is large enough to admit of the entrance of a person after the electric supply lines or apparatus therein have been placed in position, ample provision shall be made—

(a) to ensure that any gas which may by accident have obtained access to the box shall escape before a person is allowed to enter, and

(b) for the prevention of danger from sparking.

(4) The owner of all street boxes or pillars containing circuits or apparatus shall secure their covers and doors in such a manner that they can be opened only by means of a key or a special appliance.

41. Distinction of circuits of different voltages.—The owner of every generating station, sub-station, junction-box or pillar in which there are any circuits or apparatus, intended for operation at different voltages, shall ensure by means of indication of a permanent nature that the respective circuits are readily distinguishable from one another.

42. Accidental charge.—The owners of all circuits and apparatus shall so arrange them that there shall be no danger of any part thereof becoming accidentally charged to any voltage beyond the limits of voltage for which it is intended.

Where A.C. and D.C. circuits are installed on the same support they shall be so arranged and protected that they shall not come into contact with each other when live.

43. Provisions applicable to protective equipment.—(1) Fire buckets filled with clean dry sand and ready for immediate use for extinguishing fires, in addition to fire extinguishers suitable for dealing with electric fires, shall be kept in all generating stations and ground-type sub-stations in convenient situations and conspicuously marked.

(2) First aid boxes or cupboards conspicuously marked equipped with such contents as the State Government may specify, shall be provided and maintained in every generating station, enclosed sub-station and enclosed switch station so as to be readily accessible during all working hours. All such boxes and cupboards shall except in the case of unattended sub-stations and switch stations be kept in charge of responsible persons who are trained in first aid treatment and one of whom shall be available during working hours.

44. Instructions for restoration of persons suffering from electric shock.—(1) Instructions, in English, Hindi and the local language of the district, for the restoration of persons suffering from electric shock, shall be affixed by the owner in a conspicuous place in every generating station and sub-station, and in every factory as defined in clause (m) of section 2 of the Factories Act, 1948 (LXIII of 1948) in which electricity is used and in such other premises where electricity is used as the Inspector may, by notice in writing serve on the owner, direct.

(2) Copies of the instructions shall be supplied on demand by an officer or officers appointed by the Central or the State Government in this behalf at a price to be fixed by the Central or the State Government.

45. Instructions in artificial respiration.—The owner of every generating station and sub-station and of every factory and other premises to which rule 44 applies shall ensure that all authorized persons employed by him are acquainted with and competent to apply the instructions referred to in the said rule.

46. Precautions to be adopted by consumers, owners, electrical contractors, electrical workmen, licensees and other suppliers of energy.—(1) No electrical installation work, including additions, alterations, repairs and adjustments to existing installations, except such replacement of lamps, fans, fuses, switches and other component parts of the installations as in no way alters its capacity or character shall be carried out, upon the premises of, or on behalf of any consumer or owner, for the purposes of the supply of energy to such consumer or owner, except by an electrical contractor licensed in this behalf by the State Government, and under the direct supervision of a person holding a certificate of competency issued by the State Government, or; in the case of works executed for or on behalf of the Central Government and in the case of installations in mines and oilfields by the Central Government:

Provided that, the Central or the State Government as the case may be, may by notification in the official gazette, exempt on such conditions as it may impose, any such work described therein either generally or, in the case of any specified class of consumers or owners, from so much of this sub-rule as requires such work to be carried out by an electrical contractor licensed by the Central or the State Government in this behalf.

(2) No electrical installation work which has been carried out in contravention of sub-rule (1) shall be connected with the works of any licensee, non-licensee or other supplier of energy.

(3) The provisions of sub-rule (1) shall come into force in any oilfield, mine or railway administration or State or part thereof, on such date as the Central or the State Government, as the case may be, may by notification in the official gazette appoint.

47. Periodical inspection and testing of consumer's installation.—(1) Where an installation is already connected to the supply system of a licensee, non-licensee or other supplier of energy every such installation shall be periodically inspected and tested at intervals not exceeding two years either by an Inspector or by the licensee, non-licensee or other supplier of energy as may be directed by the Central or the State Government as the case may be in this behalf. The Inspector, licensee, non-licensee or other supplier of energy as the case may be, shall report on the condition of the installation to the consumer concerned in a form to be approved by the Inspector.

The fees for such inspection and test shall be determined by the Central or the State Government as the case may be in the case of each class of consumers.

(2) Notwithstanding the provisions of this rule, the consumer shall at all times be solely responsible for the maintenance of his installation in such a condition as to be free from danger.

CHAPTER V

GENERAL CONDITIONS RELATING TO SUPPLY AND USE OF ENERGY

48. Testing of consumer's installation.—(1) Upon receipt of an application for a new or additional supply of energy and before connecting the supply or reconnecting the same after a period of six months, a licensee, non-licensee or other supplier of energy shall inspect and test the applicant's installation.

The licensee, non-licensee or other supplier of energy shall maintain a record of test results obtained at each supply point to a consumer, in a form to be approved by the Inspector.

(2) If as a result of such inspection and test, the licensee, non-licensee or other supplier of energy is satisfied that the installation is likely to constitute danger, he shall serve on the applicant a notice in writing requiring him to make such modifications as are necessary to render the installation safe. The licensee, non-licensee or other supplier of energy may refuse to connect the supply until the required modifications have been completed and he has been notified.

49. Precautions against leakage before connection.—(1) A licensee, non-licensee or other supplier of energy shall not connect with his works the apparatus on the premises of any applicant for a supply unless he is reasonably satisfied that the connection will not at the time of making the connection cause a leakage from that apparatus exceeding one five thousandth part of the maximum supply demanded on the applicant's premises.

(2) If a licensee, non-licensee or other supplier of energy declines to make a connection in accordance with sub-rule (1), he shall serve upon the applicant a notice stating his reason for so declining.

50. Leakage on consumer's premises.—(1) If a licensee, non-licensee or other supplier of energy has reason to believe that there is in the system of a consumer leakage which is likely to affect injuriously the use of energy by the licensee, non-licensee or other supplier of energy or by other persons or which is likely to cause danger, he may give the consumer reasonable notice in writing that he desires to inspect and test the apparatus.

(2) If on such notice being given—

- (a) the consumer does not give all reasonable facilities for inspection and testing, or
- (b) a leakage from the consumer's system exceeding one five thousandth part of the maximum supply required by the consumer is shown to exist,

the licensee, non-licensee or other supplier of energy may forthwith discontinue the supply of energy to the system in question giving immediate notice of the discontinuance to the consumer, and need not recommence the supply until he is satisfied that the cause of the leakage has been removed.

51. Supply to consumers by licensees and others.—(1) A licensee, non-licensee or other supplier of energy shall not commence or continue to give a supply of energy to any consumer unless the following conditions have been complied with in respect of the consumer's installation:—

- (a) A suitable linked switch of requisite capacity to carry and break the current is placed as near as possible to, but after the point of commencement of supply as defined under rule 59, so as to be readily accessible and capable of being easily operated to completely isolate the supply to the installation. This shall be in addition to any equipments installed for controlling individual circuits or apparatus:

Provided that, where the point of commencement of supply and the consumer's apparatus are near each other, one linked switch near the point of commencement of supply shall be considered sufficient for the purpose of this rule:

Provided further that, in the case of high or extra high voltage installation where a suitable linked switch of requisite capacity to carry and break the full load current is inserted on the secondary side of a transformer, the linked switch on the primary side of the transformer may be of such capacity as to carry the full load current and to break only the magnetising current of the transformer.

(b) Every distinct circuit is protected against excess energy by means of a suitable cut-out or circuit-breaker of adequate rupturing capacity suitably located and so constructed as to prevent danger from overheating, arcing or the scattering of hot metal when it comes into operation and so as to permit of the ready renewal of the fusible metal without danger.

(c) The supply of energy to each motor or other apparatus is controlled by a suitable linked switch of requisite capacity placed in such a position as to be adjacent to the motor or other apparatus readily accessible to and easily operated by the person in charge, and is so connected in circuit that by its means all supply of energy can be cut off from the motor or apparatus, and from any regulating switch, resistance or other device associated therewith:

Provided that, this sub-rule shall not apply to apparatus installed in rural sub-stations belonging to a licensee, non-licensee or other supplier of energy up to and including 100 kVA.

(d) All insulating material is chosen with special regard to the circumstances of its proposed use; the mechanical strength shall be sufficient for its purpose, and, so far as is practicable, is of such a character or so protected as to maintain adequately its insulating properties under all working conditions in respect of temperature and moisture.

(e) Adequate precautions are taken to ensure that no live parts are so exposed as to cause danger.

(2) Every consumer or other user of energy shall so maintain his installation as to conform at all times to the provisions of sub-rule (1), and shall use all reasonable means in his power to ensure that, where energy is supplied by a licensee, non-licensee or other supplier of energy, no person other than the licensee, non-licensee, or other supplier of energy shall interfere with the service lines and apparatus placed by the licensee, non-licensee or other supplier of energy on his premises.

52. Provisions applicable to medium, high or extra high voltage installations.—

The following provisions shall be observed where energy at medium, high or extra-high voltage is supplied, converted, transformed or used:—

(1) (a) All conductors (other than those of overhead lines) shall be completely enclosed in mechanically strong metal casing or metallic covering which is electrically and mechanically continuous and adequately protected against mechanical damage, unless the said conductors are inaccessible except to an authorized person, or alternatively such conductors shall be so installed and protected to the satisfaction of the Inspector as to prevent danger.

(b) All metal work enclosing, supporting or associated with the installation, other than that designed to serve as a conductor shall, where necessary, be connected with earth.

(c) Every main switchboard connected with a supply shall comply with the following provisions, namely:—

(i) a clear space of not less than 3 feet in width shall be provided in front of the switchboard;

(ii) if there are any attachments or bare connections at the back of the switchboard, the space (if any) behind the switchboard shall be either less than 9 inches, or more than 30 inches in width, measured from the furthest outstanding part of any attachment or conductor;

(iii) if the space behind the switchboard exceeds 30 inches in width, there shall be a passage-way from either end of the switchboard clear to a height of 6 feet.

(2) Where an application has been made to a licensee, non-licensee or other supplier of energy for a supply of energy to any installation, he shall not commence, or where the supply has been discontinued, recommence the supply unless he is satisfied that the owner has complied in all respects with the conditions of supply as set out in sub-rule (1) of this rule, rules 51 and 65.

(3) Where a licensee, non-licensee or other supplier of energy proposes to supply or use energy at medium voltage or to recommence a supply after it has been discontinued for a period of six months, he shall, before connecting or reconnecting the supply, give notice in writing of such intention to the Inspector.

(4) If at any time after connecting the supply the licensee, non-licensee or other supplier of energy is satisfied that any provision of sub-rule (1) of this rule, rules 51 and 65 is not being observed, he shall give notice in writing to the owner and the Inspector and may discontinue the supply if the Inspector so directs.

53. Appeal to Inspector in regard to defects.—(1) If any applicant for a supply or a consumer is dissatisfied with the action of the licensee, non-licensee or other supplier of energy in declining to commence, to continue or to recommence the supply of energy to his premises upon the grounds that the installation is defective or is likely to constitute danger, he may appeal to the Inspector to test the installation and the licensee, non-licensee or other supplier of energy shall not, if the Inspector or, under his orders, any other officer appointed to assist the Inspector, is satisfied that the installation is free from the defect or danger complained of, be entitled to refuse to supply the consumer upon the grounds aforesaid, and shall, within twenty-four hours after the receipt of such intimation from the Inspector, commence, continue or recommence the supply of energy.

(2) Any test for which application has been made under the provisions of sub-rule (1) shall be carried out within seven days after the receipt of such application.

(3) This rule shall be endorsed on every notice given under the provisions of rules 48, 49 and 50.

54. Cost of inspection and test of installation on consumer's premises.—(1) The cost of the first inspection and test of a consumer's installation carried out in pursuance of the provisions of Rule 48 shall be borne by the licensee, non-licensee or other supplier of energy and the cost of every subsequent inspection and test shall be borne by the consumer, unless, in the appeal under rule 53, the Inspector decrees otherwise.

(2) The cost of any inspection and test made by the Inspector, at the request of the consumer or other interested party, shall be borne by the consumer or other interested party, unless the Inspector decrees otherwise.

(3) The cost of each and every such inspection and test by whomsoever borne shall be calculated in accordance with the scale specified by the Central or the State Government as the case may be in this behalf.

55. Declared voltage of supply to consumer.—Except with the written consent of the consumer or the previous sanction of the State Government, a licensee, non-licensee or other supplier of energy shall not permit the voltage of supply at the point of commencement as defined under rule 59 to vary from the declared voltage by more than 5 per cent. in the case of low or medium voltage or by more than 12½ per cent. in the case of high or extra-high voltage.

56. Declared frequency of supply to consumers.—The licensee, non-licensee or other supplier of energy shall not, except with written consent of the consumer or with the previous sanction of the State Government permit the frequency of an alternating current supply to vary by more than 3 per cent. from the declared frequency.

57. Sealing of meters and cut-outs.—(1) A licensee, non-licensee or other supplier of energy may affix one or more seals to any cut-out and to any meter, maximum demand indicator, or other apparatus placed upon a consumer's premises in accordance with section 26, and no person other than the licensee, non-licensee or other supplier of energy shall break any such seal.

(2) The consumer shall use all reasonable means in his power to ensure that no such seal is broken otherwise than by the licensee, non-licensee or other supplier of energy.

(3) The words, 'licensee, non-licensee or other supplier of energy', shall for the purpose of this rule include a State Government when any meter, maximum demand indicator or other apparatus is placed upon a consumer's premises by such Government.

58. Meters, maximum demand indicators and other apparatus on consumer's premises.—(1) Any meter or maximum demand indicator or other apparatus placed upon a consumer's premises in accordance with section 26 shall be of appropriate size and shall comply with the following conditions:—

(a) Where the meter is of a type included in the latest British Standard Specification for electricity meters, the limits of error shall not exceed those laid down in that Specification;

(b) Where the meter or maximum demand indicator or any other apparatus is of any other type, it shall not register more than 3 per cent. above or below absolute accuracy at all loads in excess of one-fifth of full load and up to full load;

(2) No meter shall register at no load.

(3) Every licensee, non-licensee or other supplier of energy shall provide and maintain in proper condition such suitable apparatus as may be prescribed or approved by the Inspector for the examination, testing and regulation of meters used or intended to be used in connection with the supply of energy:

Provided that, the licensee, non-licensee or other supplier of energy may with the approval of the Inspector and shall, if required by the Inspector cater into a joint arrangement with any other licensee, non-licensee or other supplier of energy for the purpose aforesaid.

(4) Every licensee, non-licensee or other supplier of energy shall examine, test and regulate all meters, maximum demand indicators and other apparatus for ascertaining the amount of energy supplied at the time of their first installation at the consumers' premises and at such other intervals as may be directed by the State Government in this behalf.

(5) Every licensee, non-licensee or other supplier of energy shall maintain a register of meters showing the date of the last test, the error recorded at the time of the test, the limit of accuracy after adjustment and final test, the date of installation, withdrawal, reinstallation, etc., for the examination of the Inspector or his authorized representative.

59. Point of commencement of supply.—The point at which the supply of energy to a consumer shall be deemed to have commenced shall be the point at the outgoing terminals of the cut-outs or any device for disconnecting supply inserted by the licensee, non-licensee or other supplier of energy in each conductor of every service line other than an earthed or earthed neutral conductor or the earthed external conductor of a concentric cable.

60. Precautions against failures of supply: Notice of failures.—(1) The lay-out of the electric supply lines of the licensee, non-licensee or other supplier of energy for the supply of energy throughout his area of supply shall under normal working conditions be sectionalised and so arranged, and provided with cut-outs or circuit-breakers so located, as to restrict within reasonable limits the extent of the portion of the system affected by any failure of supply.

(2) The licensee, non-licensee or other supplier of energy shall take all reasonable precautions to avoid any accidental interruptions of supply, and also to avoid danger to the public or to any employee or authorized person when engaged on any operation during and in connection with the installation, extension, replacement, repair and maintenance of any works.

(3) The licensee, non-licensee or other supplier of energy shall send to the Inspector notice of failure of supply of such kind as the Inspector may from time to time require to be notified to him, and such notice shall be sent by the earliest practicable post after the failure occurs or as the case may be after the failure becomes known to the licensee, non-licensee or other supplier of energy and shall be in such form and contain such particulars as the Inspector may from time to time prescribe.

(4) For the purposes of testing or for any other purposes connected with the efficient working of the undertaking, the supply of energy may be discontinued by the licensee, non-licensee or other supplier of energy for such period as may be necessary subject (except in cases of emergency) to not less than twenty-four hours' notice being given by the licensee, non-licensee or other supplier of energy to all classes of consumers specified by the Inspector likely to be affected by such discontinuance; and in the event of any such consumer or consumers from such classes of consumers objecting, the supply of energy shall not be discontinued (except in cases of emergency), without the consent of the Inspector and subject to such conditions as he may impose.

CHAPTER VI

ELECTRIC SUPPLY LINES, SYSTEMS AND APPARATUS FOR LOW AND MEDIUM VOLTAGE

61. Test for resistance of insulation.—(1) Where any electric supply line for use at low or medium voltage has been disconnected from a system for the purpose of addition or alteration or repair, such electric supply line shall not be reconnected to the system until the licensee, non-licensee or other supplier of energy or the owner has applied the test prescribed.

(2) The provisions of sub-rule (1) shall not apply to overhead lines except aerial insulated cables unless the Inspector otherwise directs in any particular case.

62. Connection with earth.—(1) The following provisions shall apply to the connection with earth of systems at low voltage in cases where the voltage normally exceeds 125 volts, and of systems at medium voltage employed for giving a general supply :—

- (a) The neutral conductor of a three-phase four-wire system, and the middle conductor of a single-phase three-wire system shall be earthed in multiple i.e. at the source of supply and at one or more other points along the distribution-line or service-line in addition to any connection with earth which may be on a consumer's premises.
- (b) In the case of a system comprising electric supply lines having concentric conductors, the external conductor shall be earthed by two separate and distinct connections with earth.
- (c) The connection with earth may include a link by means of which the connection may be temporarily interrupted for the purpose of testing or for locating a fault.
- (d) (i) In a direct current three-wire system the middle conductor shall be earthed at the source of supply only, and the current from the middle conductor to earth shall be continuously recorded by means of a recording ammeter, and if at any time the current exceeds one-thousandth part of the maximum supply-current, immediate steps shall be taken to improve the insulation of the system.
(ii) Where the middle conductor is earthed by means of a circuit-breaker with a resistance connected in parallel, the resistance shall not exceed 10 ohms and on the opening of the circuit-breaker, immediate steps shall be taken to improve the insulation of the system, and the circuit-breaker shall be reclosed as soon as possible.
(iii) The resistance shall be used only as a protection for the ammeter in case of earths on the system and until such earths are removed. Immediate steps shall be taken to locate and remove the earth.
- (e) In the case of an alternating current system, there shall not be inserted in the connection with earth any impedance (other than that required solely for the operation of switch-gear or instruments) cut-out or circuit-breaker, and the result of any test made to ascertain whether the current (if any) passing through the connection with earth is normal shall be duly recorded by the licensee, non-licensee or other supplier of energy.
- (f) No person shall make connection with earth by the aid of, nor shall he keep it in contact with, any water main not belonging to him except with the consent of the owner thereof and of the Inspector.
- (g) Alternating current systems which are connected with earth as aforesaid may be electrically interconnected:

Provided that, each connection with earth is bonded to the metal sheathing and metallic armouring (if any) of the electric supply lines concerned.

(2) The frame of every generator, stationary motor, and so far as is practicable, portable motor, and the metallic parts (not intended as conductors) of all transformers and any other apparatus used for regulating or controlling energy and all medium voltage energy consuming apparatus shall be earthed by the owner by two separate and distinct connections with earth.

(3) All metal casings or metallic coverings containing or protecting any electric supply line or apparatus shall be connected with earth and shall be so joined and connected across all junction-boxes and other openings as to make good mechanical and electrical connection throughout their whole length:

Provided that, sub-rule (3) shall not apply to isolated wall tubes or to brackets, electroliers, switch or fan regulator covers or other fittings (other than portable hand-lamps and portable and transportable apparatus) where the supply is at low voltage.

This sub-rule shall come into force immediately in the case of new installations and by 31st December, 1957 in the case of the existing installations.

(4) All earthing leads and earth connections shall, before electric supply lines or apparatus are energised, be tested for electrical resistance, to ensure efficient earthing.

(5) All earthing lead and earth connections belonging to a licensee, non-licensee or other supplier of energy shall, in addition, be tested for resistance on a dry day during the dry season not less than once every twelve months.

(6) A record of every earth test made and the result thereof shall be kept by the licensee, non-licensee or other supplier of energy for a period of not less than two years after the day of testing and shall be available for the Inspector when required.

63. Systems at medium voltage.—Where a system at medium voltage is employed for giving a general supply, the voltage between earth and any conductor forming part of the said system shall not, under normal conditions, exceed low voltage.

CHAPTER VII

ELECTRIC SUPPLY LINES, SYSTEMS AND APPARATUS FOR HIGH AND EXTRA-HIGH VOLTAGES.

64. Approval by Inspector.—(1) Electric supply lines of a licensee, non-licensee or other supplier of energy for use at high and extra-high voltages shall be placed in position, properly joined and duly completed and examined before application is made to the Inspector for permission to energise and such permission shall not be granted unless and until the Inspector is satisfied that the provisions of rules 66 to 69 have been complied with.

(2) Except with the approval in writing of the Inspector, no licensee, non-licensee or other supplier of energy shall commence a supply at high or extra-high voltage to any person.

(3) Except with the approval of the Inspector in writing, no owner of any high or extra-high voltage installation, shall cause any such installation to be energised except for tests specified in rule 66 or brought into use.

(4) The owner of any high or extra-high voltage installation shall, before making application to the Inspector for approval of his installation or additions thereto test every high or extra-high voltage circuit or additions thereto, other than an over head line, and satisfy himself that they withstand the application of the testing voltage set out in sub-rule (1) of rule 66 and shall duly record the results of such tests and forward them to the Inspector:

Provided that, an Inspector may direct the licensee, non-licensee or other supplier of energy or the owner to carry out such tests as he deems necessary or if he thinks fit, accept the manufacturer's certified tests in respect of any particular apparatus in place of the tests required by this rule.

(5) The owner of any high or extra-high voltage installation who makes any additions or alterations to the installation shall not utilize or connect to the supply apparatus or electric supply lines comprising the said alterations or additions unless and until such alterations or additions have been approved in writing by the Inspector.

65. Use of energy at high and extra-high voltage.—(1) The Inspector shall not authorize a licensee, non-licensee or other supplier of energy to connect a supply of energy at high or extra-high voltage to any consumers, unless—

- (a) all conductors and apparatus intended for use at high or extra-high voltage and situated on the premises of the consumer are inaccessible except to an authorized person and all operations in connection with the said conductors and apparatus will be carried out only by an authorized person;
- (b) the consumer has provided and agrees to maintain a separate building or a locked weather-proof and fire-proof enclosure of agreed design and location, to which the licensee, non-licensee or other supplier of energy shall at all times have access, for the purpose of housing their terminal high or extra-high voltage apparatus and metering equipment, or where the provision of a separate building or enclosure is impracticable, the consumer has segregated, where necessary, the terminal high or extra-high voltage apparatus and metering equipment belonging to the licensee, non-licensee or other supplier of energy from any other part of the consumer's apparatus by the provision of fire-proof walls.

- (c) all pole type sub-stations are constructed and maintained in accordance with rule 70.

(2) The following provisions shall be observed where energy at high or extra-voltage is supplied, converted, transformed or used:—

- (a) All conductors or live parts of any apparatus shall ordinarily be inaccessible.
- (b) All windings, at high or extra-high voltage of motors or other apparatus within reach from any position in which a person may require to be, shall be suitably protected so as to prevent danger.
- (c) Where transformer or transformers are used, suitable provision shall be made, either by connecting with earth a point of the circuit at the lower voltage or otherwise, to guard against danger by reasons of the said circuit becoming accidentally charged above its normal voltage by leakage from or contact with the circuit at the higher voltage.
- (d) (i) Where a sub-station or a switch station is situated in any building so that a fire in the sub-station or switch station might involve risk to the said building and the said sub-station or switch station contains oil-immersed transformers, switches or static condensers involving the use of more than 500 gallons of oil in one chamber provision shall be made for suitable oil soak pit and where use of more than 2,000 gallons of oil in any one oil tank, receptacle or chamber is involved, provision shall be made for the draining away or removal of any oil which may leak or escape from the tanks, receptacles or chambers containing the same; special precaution shall be taken to prevent the spread of any fire resulting from the ignition of the oil from any cause and adequate provision shall be made for extinguishing any fire which may occur. Spare oil shall not be stored in any such sub-station or switch station.
- (ii) Cable trenches inside sub-stations and containing cables shall be filled with sand, pebbles or similar non-inflammable materials or completely covered with non-inflammable slabs.
- (e) Unless the conditions are such that all the conductors and apparatus for use at high or extra-high voltage may be made dead at the same time for the purpose of cleaning or for other work thereon, the said conductors and apparatus shall be so arranged that they may be made dead in sections, and that work on any section made dead may be carried on by an authorized person without danger.
- (f) Adequate precautions shall be taken to prevent unauthorized access to any part of the installation designed to be electrically charged at high or extra-high voltage.

66. Voltage tests.—(1) Electric supply lines (other than overhead lines) and apparatus of a licensee, non-licensee or other supplier of energy for use at high and extra-high voltages shall not be connected to a system for the purposes of the supply of energy unless the insulation of the said electric supply lines and apparatus has withstood, either (i) the tests prescribed in that behalf in the appropriate specification of the British Standards Institution then current; or (ii) in cases where no such tests have been prescribed, the continuous application between conductors and also between conductors and earth during a period of not less than 15 minutes of alternating current either at a testing voltage equal to at least one and one-quarter times the normal working voltage to which the electric supply lines or apparatus will be subject under conditions of supply, or at a testing voltage equal to the aforesaid working voltage with the addition of 10,000 volts, whichever is less:

Provided that, for the purposes of such test—

- (a) the testing voltage between the outer conductor and earth in cases where the outer conductor of an electric supply line having concentric conductors is to be connected with earth shall be 1,000 volts;
- (b) the aforesaid working voltage between any phase of an alternating current system and earth in cases where the neutral conductor of the said system is not to be connected with earth shall be deemed to be the voltage between phases;

- (c) the duration of the test may be reduced to one minute in the case of apparatus for use at high and extra-high voltages subject to the testing voltage being increased so as to equal not less than one and one-half times the aforesaid working voltage, or the aforesaid working voltage with the addition of 20,000 volts, whichever is less;
- (d) direct current may be used instead of alternating current subject to the testing voltage being increased so as to exceed by at least 50 per cent. the corresponding testing voltage prescribed for alternating current:

Provided further that, an apparatus other than new shall be tested in a manner as the Inspector may specify.

(2) If the test prescribed in sub-rule (1) is made prior to the said electric supply lines and apparatus being placed in position for the purposes of the supply of energy, the said electric supply lines and the apparatus after having been placed in position and before being connected to the system shall have withstood a further test for resistance of insulation either by the application of the tests prescribed in sub-rule (1) whenever reasonably practicable, or by the application of a testing voltage of not less than 1,000 volts either alternating current or direct current between conductors and also between conductors and earth during a period of not less than one minute.

(3) Where any electric supply line (other than an overhead line) or apparatus for use at high or extra-high voltage has been disconnected from a system for alteration or repair, such electric supply line or apparatus shall not be reconnected to the system until the licensee, non-licensee or other supplier of energy has applied the test prescribed in sub-rule (2) and has satisfied himself that the insulation of the electric supply line or apparatus is in sound condition.

(4) The licensee, non-licensee or other supplier of energy shall duly record the result of every test made under this rule.

(5) Notwithstanding the provisions of sub-rules (1) to (4), inclusive the Inspector may, where he thinks fit, accept the manufacturer's certified tests in place of the tests prescribed in this rule.

67. Metal sheathed electric supply lines: Precautions against excess leakage.—

(1) The following provisions shall apply to electric supply lines of a licensee, non-licensee or other supplier of energy (other than overhead lines) for use at high and extra-high voltage:—

- (a) The conductors shall be enclosed in metal sheathing which shall be electrically continuous and connected with earth, and the conductivity of the metal sheathing shall be maintained and reasonable precautions taken where necessary to avoid corrosion of the sheathing.
- (b) In the event of a failure of insulation occurring between one conductor and the metal sheathing at any point along an electric supply line as aforesaid, the impedance of the relevant circuit shall be such that with the full voltage maintained at the source of supply the current resulting from such failure shall not be less than twice the value of the current for which a suitable cut-out of adequate rupturing capacity or other suitable overload protective device has been set to operate or the current required to operate a suitable discriminative fault current relay:

Provided that, the operation of the aforesaid overload protective device or of the discriminative fault current relay shall cause the automatic operation of a circuit-breaker of adequate rupturing capacity.

- (c) The relevant circuit hereinbefore referred to means the complete circuit from the source of supply to the point of failure of the insulation, including any connection with earth of the system of which the electric supply line as aforesaid forms part and any current limiting device inserted in such connection with earth; and the source of supply means the point at which energy is given to the system or circuit of which the electric supply line as aforesaid forms part.
- (d) Where an electric supply line as aforesaid has concentric conductors and the external conductor is insulated from an outer metal sheathing and connected with earth, the external conductor may be regarded as the metal sheathing for the purposes of this rule provided that, the foregoing provisions as to conductivity are complied with.

(2) Nothing in the provisions of sub-rule (1) shall preclude the employment in generating stations, substations and switch stations (including outdoor substations and outdoor switch stations) of conductors for use at high and extra-high voltages which are not enclosed in metal sheathing, or preclude the use of electric supply lines laid before the prescribed date to which the provisions of these rules apply.

68. Connection with earth.—(1) The following provisions shall apply to the connection with earth of three-phase systems for use at high and extra-high voltages:—

In the case of Star-connected systems with earthed neutrals or delta connected systems with earthed artificial neutral point:

- (a) the neutral point shall be earthed at the source of supply with two separate and distinct connections each having its own electrode and may be earthed at any other point, provided that, no interference of any description is caused by such earthing;
- (b) in the event of an appreciable harmonic current flowing in the neutral connection so as to cause interference with communication circuits, the generator or transformer neutral shall be earthed through a suitable impedance.

(2) Single-phase high or extra-high voltage systems shall be earthed in a manner which shall be approved by the Inspector.

(3) In the case of a system comprising electric supply lines having concentric conductors, the external conductor shall be the one to be connected with earth.

(4) Where a licensee, non-licensee or other supplier of energy proposes to connect with earth at one point only an existing system for use at high or extra-high voltage which has not hitherto been so connected with earth, he shall give not less than fourteen days' notice in writing together with particulars to the Telegraph Authority of the proposed connection with earth.

(5) Where the earthing lead and earth connection are used only in connection with earthing guards erected under high or extra-high voltage overhead lines where they cross a telecommunication line or a railway line, and where such lines are equipped with earth leakage relays of a type and setting approved by the Inspector, the resistance shall not exceed 25 ohms.

(6) In so far as the provisions of rule 62 are consistent with the provisions of this rule, all connections with earth shall also comply with the provisions of that rule.

69. General conditions as to transformation and control of energy.—(1) Where energy at high and extra-high voltage is transformed, converted, regulated or otherwise controlled in substations or switch stations (including outdoor substations and outdoor switch stations) or in street boxes constructed under ground, the following provisions shall have effect:—

- (a) Substations and switch stations shall preferably be erected above ground, but were necessarily constructed under ground due provision for ventilation and drainage shall be made;
- (b) Outdoor substations except pole type substations and outdoor switch stations shall (unless the apparatus is completely enclosed in a metal covering connected with earth, the said apparatus also being connected with the system by armoured cables) be efficiently protected by fencing not less than eight feet in height or other means so as to prevent access to the electric supply lines and apparatus therein by an unauthorized person;
- (c) Underground street boxes (other than substations) which contain transformers shall not contain switches or other apparatus, and switches, cut-outs or other apparatus required for controlling or other purposes shall be fixed in separate receptacles above ground wherever practicable;
- (d) The works of the licensee, non-licensee or other supplier of energy shall be labelled with an appropriate CAUTION notice, in accordance with the provisions of rule 34.

70. Pole type substations.—Where platform type construction is used for a pole type substation and a sufficient space for a person to stand on the platform is provided, a substantial hand rail shall be built around the said platform and if the hand rail is of metal, it shall be connected with earth:

Provided that, in the case of pole type substation on wooden support and wooden platform the metal hand rail shall not be connected with earth.

71. Condensers.—Suitable provision shall be made for the immediate automatic discharge of every static condenser on disconnection of the supply.

72. Additional provisions for supply to high voltage luminous tube installation.—

(1) Any person who proposes to use, or who is using energy for the purpose of operating a luminous tube installation, or who proposes to transform or who is transforming energy to a higher voltage for any such purpose shall comply with the following conditions:—

- (a) All live parts of the installation (including all apparatus and live conductors in the secondary circuit, but excluding the tubes except in the neighbourhood of their terminals) shall be inaccessible to unauthorized persons and such parts shall be effectively screened.
 - (b) Irrespective of the method of obtaining the voltage of the circuit which feeds the luminous discharge tubes, no part of any conductor of such circuit shall be in metallic connection (except in respect of its connection with earth) with any conductor of the supply system or with the primary winding of the transformer.
 - (c) All live parts of an exterior installation shall be so disposed as to protect them against the effects of the weather.
 - (d) The secondary circuit shall be permanently earthed at the transformer and the core of every transformer shall be earthed.
 - (e) Where the conductors of the primary circuit are not in metallic connection with the supply conductors (e.g. where a motor-generator or a double-wound convertor is used), one pole of such primary circuit shall be permanently earthed at the motor-generator or convertor, or at the transformer.
 - (f) A final sub-circuit which forms the primary circuit of a fixed luminous-discharge-tube installation shall be reserved solely for such purpose.
 - (g) A separate primary final sub-circuit shall be provided for each transformer or each group of transformers having an aggregate input not exceeding 1000 volt amperes, of a fixed luminous discharge-tube installation.
 - (h) An interior installation shall be provided with suitable adjacent means for disconnecting all poles of the supply except the "neutral" in a three-phase four-wire circuit.
 - (i) For installations on the exterior of a building a suitable emergency fire-proof, linked switch to operate on all poles except the neutral in a three-phase four-wire circuit shall be provided and fixed in a conspicuous position at not more than 9 ft. above the ground.
 - (k) A special "caution" notice shall be affixed in a conspicuous place on the door of every high voltage enclosure to the effect that the low voltage supply must be cut off before the enclosure is opened.
 - (l) Where static condensers are used, they shall be installed on the load side of the fuses and the primary (low voltage) side of the transformer.
 - (m) Where static condensers are used on primary side, means shall be provided for automatically discharging the condensers when the supply is cut off;
- provided that, static condensers or any circuit interrupting devices on the high or extra high voltage side shall not be used without the approval in writing of the Inspector.

(2) The owner or user of any luminous tube sign or similar high-frequency installation shall not bring the same into use without giving to the Inspector not less than 14 days notice in writing of his intention so to do.

73. Additional provisions for supply to high voltage electrode boilers.—(1) Where a system having a point connected with earth is used for supply of energy at high or extra-high voltage to an electrode boiler which is also connected with earth, the following conditions shall apply:—

- (a) The metal work of the electrode boiler shall be efficiently connected to the metal sheathing and metallic armouring (if any) of the high voltage electric supply line whereby energy is supplied to the electrode boiler.

- (b) The supply of energy at high or extra-high voltage to the electrode boiler shall be controlled by a suitable circuitbreaker so set as to operate in the event of the phase currents becoming unbalanced to the extent of 10 per cent. of the rated current consumption of the electrode boiler under normal conditions of operation :

Provided that, if in any case a higher setting is essential to ensure stability of operation of the electrode boiler, the setting may be increased so as not to exceed 15 per cent. of the rated current consumption of the electrode boiler under normal conditions of operation.

- (c) An inverse time element device may be used in conjunction with the aforesaid circuit breaker to prevent the operation thereof unnecessarily on the occurrence of unbalanced phase currents of momentary or short duration.
- (d) The licensee, non-licensee or other supplier of energy shall serve a notice in writing on the Telegraph Authority at least seven days prior to the date on which such supply of energy is to be afforded specifying the location of every point (including the earth connection of the electrode boiler) at which the system is connected with earth.

(2) The owner or user of any high or extra-high voltage electrode boiler shall not bring the same into use without giving the Inspector not less than 14 days' notice in writing of his intention so to do.

74. Supply to X-Ray and High Frequency Installation.—(1) Any person who proposes to employ or who is employing energy for the purpose of operating an X-ray or similar high-frequency installation, shall comply with the following conditions.—

- (a) Mechanical barriers to prevent too close an approach to any high-voltage parts of the X-ray apparatus, except the X-ray tube and its leads, shall be provided unless such high-voltage parts have been rendered shock-proof by being shielded by earthed metal or adequate insulating material.
- (b) Where extra-high-voltage generators operating at 300 peak kV or more are used, such generators shall be installed in rooms separate from those containing the other equipment and any step-up transformer employed shall be so installed and protected as to prevent danger.
- (c) A suitable switch shall be provided to control the circuit supplying a generator, and shall be so arranged as to be open except while the door of the room housing the generator is locked from the outside.
- (d) X-ray tubes used in therapy shall be mounted in an earthed metal enclosure.
- (e) Every X-ray machine shall be provided with a milliammeter or other suitable measuring instrument, readily visible from the control position and connected if practicable, in the earthed lead, but guarded if connected in the high-voltage lead.
- (f) This sub-rule shall not apply to shock proof portable units or shock-proof self-contained and stationary units.

NOTE.—The expression "shock-proof", as applied to X-ray and high-frequency equipment, shall mean that such equipment is guarded with earthed metal so that no person may come, into contact with any live part.

(2) (a) In the case of non-shock-proof equipment overhead high-voltage conductors, unless suitably guarded against personal contact, shall be adequately spaced and high-voltage leads on tilting tables and fluoroscopes shall be adequately insulated or so surrounded by barriers as to prevent inadvertent contact.

(b) The low-voltage circuit of the step-up transformer shall contain a manually operated control device having overload protection, in addition to the over-current device for circuit protection, and these devices shall have no exposed live parts, and for diagnostic work there shall be an additional switch in the said circuit, which shall be of one of the following types :

- (i) A switch with a spring or other mechanism that will open automatically except while held closed by the operator, or
- (ii) A time-switch which will open automatically after a definite period of time for which it has been set.

(c) If more than one piece of apparatus be operated from the same high or extra-high-voltage source, each shall be provided with a high or extra-high-voltage switch to give independent control.

(d) Low frequency current-carrying parts of machine of the quenched-gap or open-gap type shall be so insulated or guarded that they cannot be touched during operation, the high-frequency circuit proper which delivers high-frequency current normally for the therapeutic purposes, being exempted.

(e) All X-ray generators having capacitors shall have suitable manual means for discharging the capacitors.

(f) Except in the case of self-contained units, all 200 peak kV, or higher, X-ray generators shall have a sphere-gap installed in the high-voltage system, adjusted so that it will break down on over-voltage surges.

(3)(a) All non-current-carrying metal parts of tube stands, fluoroscopes and other apparatus shall be properly earthed and insulating floors, mats or platforms shall be provided for operators in proximity to high or extra-high-voltage parts unless such parts have been rendered shock-proof.

(b) Where short-wave therapy machines are used, the treatment tables and examining chairs shall be wholly non-metallic.

(4) The owner of any X-ray installation or similar high-frequency apparatus shall not bring the same into use without giving to the Inspector not less than 14 days' notice in writing of his intention so to do.

CHAPTER VIII

OVERHEAD LINES

75. Material & strength.—(1) All conductors of overhead lines other than those specified in sub-rule (1) of rule 86 shall have a breaking strength of not less than 700 lbs.

(2) Where the voltage is low and the span is of less than 50 feet and is on the owner's premises, a conductor having an actual breaking load of not less than 300 lbs. may be used.

76. Joints.—Joints between conductors of overhead lines shall be mechanically and electrically secure under the conditions of operation. The ultimate strength of the joint shall not be less than 95 percent of that of the conductor, and the electrical conductivity not less than that of the conductor.

77. Maximum stresses: Factors of safety.—“(1) (a) The owner of every overhead line shall ensure that it has the following minimum factors of safety. The minimum factors of safety for supports based on crippling load shall be as follows:

- (i) for metal supports, 2.0;
- (ii) for wood supports, 3.5;
- (iii) for concrete spun supports, 2.5;
- (iv) for other concrete supports, 3.0;

and that the strength of the supports in the direction of the line is not less than one-fourth of the strength required in the direction transverse to the line:

Provided that, in the case of latticed steel or other compound structures, the factors of safety shall not be less than 1.5 under such broken wire conditions as may be specified by the State Government in this behalf.

(b) The minimum factor of safety for stay-wires, guard-wires or bearer wires shall be 2.5 based on the ultimate tensile strength of the wire.

(c) The minimum factor of safety for conductors shall be 2 based on their ultimate tensile strength. In addition, the conductor tension at 90° F., without external load, shall not exceed the following percentages of the ultimate tensile strength of the conductor—

Initial unloaded tension	... 35 per cent;
Final unloaded tension	... 25 per cent;

Provided that, in the case of conductors having a cross-section of a generally triangular shape, such as conductors composed of 3 wires, the final unloaded tension at 90° F. shall not exceed 30 per cent. of the ultimate tensile strength of such conductor.”

(2) For the purpose of calculating the factors of safety prescribed in sub-rule (1).

- (a) the maximum wind pressure shall be such as the State Government may specify in each case;
- (b) For cylindrical bodies the effective area shall be taken as two-thirds of the projected area exposed to wind pressure;
- (c) For lattice steel or other compound structures the wind pressure on the leeward members shall be taken as one-half of the wind pressure on the windward side members and the factors of safety shall be calculated on the crippling load of struts and upon the elastic limit of tension members;
- (d) the maximum and minimum temperatures shall be such as the State Government may specify in each case.

(3) Notwithstanding anything in sub-rules (1) and (2), in localities where overhead lines are liable to accumulations of ice or snow the State Government may, by order in writing, specify the loading conditions for the purpose of calculating the factor of safety.

78. Clearances above ground of the lowest conductor.—(1) No conductor of an overhead line, including service lines, erected across a street shall at any part thereof be at a height less than—

- (a) for low and medium voltage lines ... 19 ft.
- (b) for high-voltage lines ... 20 ft.

(2) No conductor of an overhead line, including service lines, along any street shall at any part thereof be at a height less than—

- (a) for low and medium voltage lines ... 18 ft.
- (b) for high-voltage lines ... 19 ft.

(3) No conductor of an overhead line including service lines, erected elsewhere than along or across any street or in situations accessible to vehicular traffic shall be at a height less than—

- (a) for low, Medium and high voltage lines upto 11,000 volts, if bare ... 15 ft.
- (b) for low, medium and high voltage lines, upto 11,000 volts, if insulated ... 13 ft.
- (c) for high voltage lines above 11,000 volts ... 17 ft.

(4) For extra-high voltage lines the clearance above ground shall not be less than 17 ft. plus 1 foot for every 33,000 volts or part thereof by which the voltage of the line exceeds 33,000 volts.

Provided that, the minimum clearance along or across any street shall not be less than 20 feet.

79. Clearances between conductors and trolley wires.—No. conductor of an overhead line crossing a tramway or trolley-bus route using trolley wires shall have less than the following clearances above any trolley wire:

- (a) low and medium voltage lines ... 4 ft.

Provided that, where an insulated conductor suspended from a bearer wire crosses over a trolley wire the minimum clearance for such insulated conductor shall be 2 ft.

- (b) high voltage lines up to and including 11,000 volts... 6 ft.
- (c) high voltage lines above 11,000 volts ... 8 ft.
- (d) extra high voltage lines ... 10 ft.

80. Clearance from buildings of low and medium voltage lines and service lines.—Where a low or medium voltage overhead line passes above or adjacent to or terminates on any building, the following minimum clearances from any accessible point, on the basis of maximum sag, shall be observed:

(a) for any flat roof, open balcony, verandah roof and lean-to roof—

- (i) when the line passes above the building a vertical clearance of 8 feet from the highest point, and

- (ii) when the line passes adjacent to the building a horizontal clearance of 4 feet from the nearest point, and

(b) for pitched roof—

- (i) when the line passes over the building a vertical clearance of 8 feet immediately under the lines and—
- (ii) when the line passes adjacent to the building a horizontal clearance of 4 feet.

(2) Any conductor so situated as to have a clearance less than that specified in sub-rule (1) shall be adequately insulated and shall be attached by means of metal clips at suitable intervals to a bare earthed bearer wire having a breaking strength of not less than 700 lbs.

(3) The horizontal clearance shall be measured when the line is at a maximum deflection from the vertical due to wind pressure.

81. Clearance from buildings of high and extra-high voltage lines.—(1) Where a high or extra high voltage overhead line passes above or adjacent to any building or part of a building it shall have on the basis of maximum sag a vertical clearance above the highest part of the building immediately under such line of not less than—

- (a) for high voltage lines up to and including 33,000 volts ... 12 ft.
- (b) for extra high voltage lines ... 12 feet plus 1 foot for every additional 33,000 volts or part thereof.

(2) The horizontal clearance between the nearer conductor and any part of such building shall on the basis of maximum deflection due to wind pressure, be not less than.—

- (a) for high voltage lines up to and including 11,000 volts ... 4 ft.
- (b) for high voltage lines up to and including 33,000 volts ... 6 ft.
- (c) for extra high voltage lines ... 6 ft. plus 1 foot for every additional 33,000 volts or part thereof.

82. Erection of or alteration to buildings.—(1) If, at any time subsequent to the erection of an overhead line (whether covered with insulating material or bare), any person proposes to erect a new building or structure, whether permanent or temporary, or to make in or upon any building or structure any permanent temporary addition or alteration he and the contractor he employs to carry out the erection, addition or alteration shall, if such building, structure addition or alteration would, during or after construction result in contravention of the provisions of rule 80 or 81 give notice in writing of his intention to the licensee, non-licensee or other supplier of energy, and to an Inspector and shall furnish therewith a scale drawing showing the proposed building, structure, addition or alteration and scaffolding required during its construction.

(2) On receipt of such notice the licensee, non-licensee or other supplier of energy shall, without undue delay, so alter the overhead line as to ensure that it will not be accessible in such a manner as to contravene the provisions of rule 80 or 81 either during or after construction. The licensee, non-licensee or other supplier of energy shall be entitled to recover, from the person from whom the notice was received or from the person from whom he is entitled to receive such notice, the cost of such alterations which shall be deemed to include the following items, namely:—

- (a) the cost of additional material used on the alteration;
- (b) the wages of labour employed in effecting the alteration;
- (c) supervision charges to the extent of 15 per cent. of them (b); and
- (d) any charges incurred by the licensee, non-licensee or other supplier of energy in complying with the provisions of section 16 in respect of such alterations;

Provided that, the licensee, non-licensee or other supplier of energy may, before so altering the overhead line, require the person from whom the notice was received to deposit the estimated cost of such alteration, which shall in case of dispute be determined by the Inspector.

(3) No work upon the building, structure, addition or alteration shall be commenced until the Inspector has certified that neither during nor after construction the provisions of rule 80 or 81 will be contravened:

Provided that, an Inspector may, if he is satisfied that the overhead line has been so guarded as to secure the protection of persons and property from injury or risk of injury, permit the work to be executed prior to, or, in the case of a temporary, addition or alteration, without, the alteration of the overhead line.

83. Clearances: General.—For the purpose of computing the vertical clearance for an overhead line the maximum sag of any conductor shall be calculated on the basis of the maximum sag in still air and the maximum temperature as specified by the State Government under rule 77(2)(d). Similarly for the purpose of computing any horizontal clearance for an overhead line the maximum deflection of any conductor shall be calculated on the basis of the wind pressure specified by the State Government under rule 77(2) (a).

84. Routes: Proximity to Aerodromes.—(1) Overhead lines shall not be erected in the vicinity of aerodromes until the aerodrome authorities have approved in writing the route of the proposed lines.

85. Maximum intervals between supports.—All conductors shall be attached to supports at intervals not exceeding the safe limits based on the ultimate tensile strength of the conductor and the factor of safety prescribed in rule 77:

Provided that, where such overhead line is erected in, over, along or across any street, the interval shall not, without the consent in writing of the Inspector, exceed 220 feet.

86. Conditions to apply where telecommunication lines and power lines are carried on same supports.—(1) Every overhead telecommunication line erected on supports carrying a power line shall consist of conductors each having a breaking strength of not less than 600 lbs.

(2) Every telephone used on a telecommunication line erected on supports carrying a power line shall be suitably guarded against lightning and shall be protected by cut-outs.

(3) Where a telecommunication line is erected on supports carrying a high or extra-high-voltage power line arrangement shall be made to safeguard any person using the telephone against injury resulting from contact, leakage or induction between such power and telecommunication lines.

87. Protection of telecommunication lines and other owner's lines.—(1) The owner shall take all reasonable precautions in constructing, laying down, placing and using electric supply lines so as not injuriously to affect, whether by induction or otherwise, any telecommunication line.

(2) When it is intended to erect a telecommunication line which will cross over or be in proximity to an overhead line, the person proposing to erect such telecommunication line shall give notice in writing of his intention to the owner of the overhead line.

(3) Where an overhead line crosses or is in proximity to an overhead line belonging to another person, the owner of the line which was last erected shall so protect it as to guard against the possibility of its coming into contact with the other overhead line.

(4) A person erecting or proposing to erect an overhead line which will cross or be in proximity to another overhead line may require the owner of the other overhead line within twenty-one days to so alter it as to guard against the possibility of its coming into contact with the new line.

(5) In all cases referred to in the preceding sub-rules the expense of making the guarding or protective arrangement shall be borne by the person whose overhead line was last erected.

(6) Where two overhead lines cross, the crossing shall be made as nearly at right angles as the nature of the case admits.

88. Guarding.—(i) Where guarding is required under these rules the provisions of sub-rules (2) to (5) shall apply.

(2) Every guard shall be connected with earth at each point at which its electrical continuity is broken.

(3) Where used, guard-wires shall have an actual breaking load of not less than 1400 lbs. and if made of iron or steel, shall be galvanised.

(4) Every guard-wire or cross-connected system of guard-wires, shall have sufficient current-carrying capacity to ensure the rendering dead, till the contact has been removed of any live wire coming into contact with it, without risk of fusing of the guard-wire or wires.

(5) Guarding arrangements shall ordinarily be carried out by the owner of the supports on which they are made, and such owner shall be responsible for their efficient maintenance.

(6) Lines crossing trolley-wires—In the case of a crossing over a trolley wire the guarding shall fulfil the following conditions, namely:—

- where there is only one trolley-wire, two guard-wires shall be erected as in the appended diagram A;
- where there are two trolley-wires and the distance between them does not exceed 15 inches, two guard-wires shall be erected as in the appended diagram B;
- where there are two trolley-wires and the distance between them exceeds 15 inches but does not exceed 48 inches, three guard-wires shall be erected as in the appended diagram C;
- where there are two trolley-wires and the distance between them exceeds 48 inches, each trolley-wire shall be separately guarded as in the appended diagram D;
- the rise of the trolley boom shall be so limited that, if the trolley leaves the trolley-wire, it shall not foul the guard wires; and
- where a telegraph-line is liable to fall or be blown down upon an arm, stay-wire or span-wire, and so slide down upon a trolley-wire, guard hooks shall be provided to prevent such sliding.

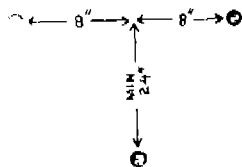


DIAGRAM A

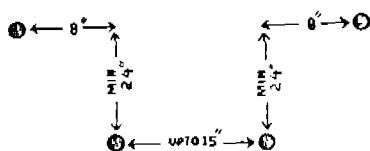


DIAGRAM B

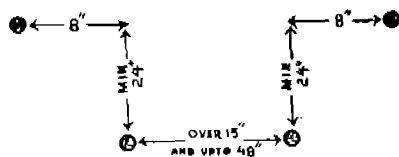


DIAGRAM C



DIAGRAM D

89. Service-lines from overhead lines.—No service-line or tapping shall be taken off an overhead line except at a point of support.

90. Earthing.—(1) All metal supports of overhead lines and metallic fittings attached thereto, shall be permanently and efficiently earthed. For this purpose a continuous earth wire securely fastened to each pole and connected with earth ordinarily at four points in every mile, the spacing between the points being as nearly equidistant as possible, shall be provided, or alternatively, each pole shall be efficiently earthed.

(2) Each stay-wire shall be similarly earthed unless an insulator has been placed in it at a height not less than 10 ft. from the ground.

91. Safety and protective devices.—(1) The owner of every overhead line (not being suspended from a dead bearer wire and not being covered with insulating material and not being a trolley-wire) erected over any part of a street or other public place or in any factory or mine or on any consumer's premises shall protect it with a device approved by the Inspector for rendering the line electrically harmless in case it breaks.

(2) An Inspector may by notice in writing require the owner of any such overhead line wherever it may be erected to protect it in the manner specified in sub-rule (1).

(3) The owner of every high and extra high voltage overhead line shall make adequate arrangements to the satisfaction of the Inspector to prevent unauthorized persons from ascending any of the supports of such overhead lines without the aid of a ladder or special appliances.

92. Protection against lightning.—(1) The owner of every overhead line which is exposed to lightning shall adopt efficient means for diverting to earth any electrical surges of high amplitude due to lightning.

(2) The earthing lead for any lightning arrestor shall not pass through any iron or steel pipe, but shall be taken as directly as possible from the lightning-arrestor to the earthing connection subject to the avoidance of bends wherever practicable.

93. Unused overhead lines.—(1) Where an overhead line, ceases to be used as an electric supply line, the owner shall maintain it in a safe mechanical condition in accordance with rule 77 or shall remove it.

(2) Where any overhead line ceases to be used as an electric supply line, an Inspector may, by a notice in writing served on the owner, require him to maintain it in a safe mechanical condition or to remove it within fifteen days of the receipt of the notice.

CHAPTER IX

ELECTRIC TRACTION

94. Additional rules for electric traction.—(1) The rules in this Chapter apply only where energy is used for purposes of traction:

Provided that, nothing in this Chapter shall apply to energy used for the public carriage of passengers, animals or goods on, or for the lighting or ventilation of the rolling stock of, any railway or tramway subject to the provisions of the Indian Railways Act, 1890 (IX of 1890).

(2) In this Chapter the conductor used for transmitting energy to a vehicle is referred to as the "line" and the other conductor as the "return".

(3) The owner of the line, return, rails or trolley-wire, as the case may be, shall be responsible for the due observance of rules 95 to 108.

95. Voltage of supply to vehicle.—No person shall supply energy at high or extra-high voltage to any trolley-wire or other conductor used in direct electrical and mechanical connection with any vehicle, except with the written approval of the Central or the State Government as the case may be and subject to such conditions as the Central or the State Government may think reasonable and proper in the circumstances.

96. Insulation of lines.—Every line shall be insulated throughout.

97. Insulation of returns.—(1) Where any rails on which cars run, or any conductors, laid between or within three feet of such rails, form any part of a return, such part may be uninsulated. All other returns or parts of a return, shall be insulated, unless they are of such conductivity as to secure the conditions required by sub-rules (2) and (3) of rule 98.

(2) Where any part of a return is uninsulated, it shall be connected with the negative terminal of the generator.

98. Proximity to metallic pipes, etc.—(1) Where an uninsulated return is in proximity to any metallic pipe, structure or substance, not belonging to the owner of the return, he shall, if so required by the owner of such pipe, structure or substance, connect his return therewith at the latter's expense.

(2) Where the return is partly or entirely uninsulated, the owner shall, in the construction and maintenance of his system, adopt such means for reducing the difference produced by the current between the potential of the uninsulated return at any one point and the potential of the uninsulated return at any other point as to ensure that the difference of potential between the uninsulated return and any metallic pipe, structure or substance in the vicinity shall not exceed four volts where the return is relatively positive, or one and one-third volts where the return is relatively negative.

(3) The owner of any such pipe, structure, or substance as is referred to in sub-rule (2) may, in respect of it, require the owner of the uninsulated return at reasonable times and intervals to ascertain by test in his presence, or in that of his representative, whether the condition specified in sub-rule (2) is fulfilled; and, if such condition is found to be fulfilled, all reasonable expenses of, and incidental to, the carrying out of the test shall be borne by the owner of the pipe, structure or substance.

99. Difference of potential on return.—Where the return is partly or entirely uninsulated, the owner shall keep a continuous record of the difference of potential, during the working of his system, between every junction of an insulated return with an uninsulated return and the point on the route most distant from the junction, and the difference of potential shall not, under normal running conditions, exceed a mean value of seven volts between the highest momentary peak and the average for the hour of maximum load.

100. Leakage on conduit system.—Where both the line and the return are placed within a conduit, the following conditions shall be fulfilled in the construction and maintenance of the system:—

(a) where the rails are used to form any part of the return, they shall be electrically connected, (at distances not exceeding 100 feet apart) with the conduit by means of copper strips having a cross-sectional area of at least one-sixteenth of a square inch or by other means of equal conductivity. Where the return is wholly insulated and contained within the conduit, the latter shall be connected with earth at the generating station or substation through an instrument suitable for the indication of any contact or partial contact of either the line or the return with the conduit; and

(b) the leakage-current shall be ascertained daily, before or after the hours of running, when the line is fully charged; and if at any time it is found to exceed one ampere per mile of single tramway track, the transmission and use of energy shall be suspended unless the leakage is stopped within twenty-four hours.

101. Leakage on system other than conduit system.—Where both the line and the return are not placed within a conduit, the leakage-current shall be ascertained daily before or after the hours of running, when the line is fully charged; and if at any time it is found to exceed one half of one ampere per mile of single tramway track, the transmission and use of energy shall be suspended unless the leakage is stopped within twenty-four hours.

102. Passengers not to have access to electric circuit.—Precautions to the satisfaction of an Inspector shall be taken by the owner of every vehicle to prevent:—

(a) the access of passengers to any portion of the electric circuit where there is danger from electric shock;

(b) any metal hand-rail or other metallic substance liable to be handled by passengers becoming charged.

103. Current density in rails.—Where rails on which cars run are used as a return, the current density in such rails, shall not, under ordinary working conditions, exceed nine amperes per square inch of cross-sectional area.

104. Isolation of sections.—Every trolley-wire shall be constructed in sections not exceeding one mile in length, and means shall be provided for isolating each section.

105. Minimum size and strength of trolley-wire.—No trolley-wire shall be of less cross-sectional area than eight one hundredths of a square inch or shall have an actual breaking load of less than 4,500 lbs.

106. Height of trolley-wire and length of span.—A trolley-wire or a traction-feeder on the same supports as a trolley-wire shall nowhere be at a height from the surface of the street of less than 17 feet except, where it passes under a bridge or other fixed structure, or through or along a tunnel or mineshaft or the like in which case it shall be suspended to the satisfaction of an Inspector. The intervals between the supports shall not exceed 140 feet.

107. Earthing of Guard Wires.—Every guard wire shall be connected with earth at each point at which its electrical continuity is broken and in the case of electric traction lines, shall also be connected, at intervals of not more than five spans, with the rails.

108. Records.—(1) The owner shall, so far as is consistent with his system of working, keep the following records, namely:—

(a) daily records showing—

the maximum working current from the source of supply;
the maximum working voltage at the source of supply;
the difference of potential, as required by rule 99; and
the leakage-current (if any), as required by rules 100 and rule 101; and

(b) occasional records showing—

every test made under sub-rules (2) and (3) of rule 98;
every stoppage of leakage, together with the time occupied; and
particulars of any abnormal occurrence affecting the electrical working of the system.

(2) Such records shall be open to examination by an Inspector or by any person authorized in writing by an Inspector.

CHAPTER X

ADDITIONAL PRECAUTIONS TO BE ADOPTED IN MINES AND OIL-FIELDS

109. Application of Chapter.—(1) The rules in this Chapter apply only—

- (a) where energy is used in mines where the provisions of Part III of the Act apply; and
- (b) where energy is used in oilfields.

(2) In mines the rules in this Chapter do not apply to apparatus used above-ground, excepting such apparatus as may directly affect the safety of persons below ground.

110. Responsibility for observance.—(1) It shall be the duty of the owner, agent, or manager of a mine, or of the agent of any company operating in an oil-field, or of the owner of one or more drilled wells situated in an oil-field, to comply with and enforce the following rules and it shall be the duty of all persons employed to conduct their work in accordance with such rules.

(2) An authorized person shall be on duty in every mine or oil-field while energy is being used therein.

111. Notices.—(1) On or before the first day of February in every year, in respect of every mine or oilfield, returns giving the size and type of apparatus, together with such particulars in regard to circumstances of its use which may be required by the Inspector, shall be sent to the Inspector by the persons specified in rule 110 in the form set out in Annexures IX or X, whichever is applicable.

(2) The persons specified in rule 110 shall also send to the Inspector not less than seven days notice in writing of the intention to bring into use any new installation in a mine or oilfield giving details of apparatus installed and its location:

Provided that, in case of any additions or alterations to an existing low and medium voltage installation, immediate notice in writing shall be sent to the Inspector before such additions or alterations are brought into use.

(3) This rule shall not apply to telecommunication or signalling apparatus.

112. Plans.—(1) A correct plan, on the same scale as the plan kept at the mine in fulfilment of the requirements of the Indian Mines Act, 1923 (IV of 1923), shall also be available in the office at the mine showing the position of all fixed apparatus and conductors therein, other than lights, telecommunication or signalling apparatus, or cables for the same.

(2) A similar plan, on the scale not less than sixteen inches to a mile shall also be kept by the manager or owner of one or more wells in any oilfield.

(3) A similar plan showing the position of all electric supply lines, and on such scale as the Central Government may direct, shall be kept in the office of any licensee or other person transmitting or distributing energy in a mine or oilfield.

(4) The plans specified under the provisions of this rule shall be examined, and if necessary, amended every six months, and the dates of examination shall be entered thereon by the manager or owner of the mine or wells and such plans shall be available to the Inspector, or an Inspector of Mines, at any time.

113. Lighting, communications and fire precautions.—(1) In a mine illuminated by electricity, one or more flame safety lamps, or other lights approved by the Inspector, shall be maintained in a state of continuous illumination in all places where failure of the electric light at any time would be prejudicial to safety.

(2) Efficient means of communication shall be provided in every mine between the point where the switchgear provided under sub-rule (1) of rule 121 is erected, and the shaft-bottom or other distributing centre in the mine.

(3) Fire extinguishing appliances of adequate capacity and of an approved type shall be installed and properly maintained in every place in a mine containing apparatus, other than cables, telecommunication and signalling apparatus.

114. Isolation and fixing of transformers, switchgear, etc.—(1) Where necessary to prevent danger or mechanical damage, transformers and switchgear shall be placed in a separate room, compartment, or box, hereinafter referred to as the container.

(2) Unless the apparatus is constructed, protected, and operated so as to obviate the risk of fire, no inflammable material shall be used in the construction of the container or the fittings therein. Each container shall be substantially constructed and shall be kept dry, and efficient ventilation shall be provided for all apparatus installed therein.

(3) Adequate working space and means of access clear of obstruction shall, so far as circumstances permit, be provided for all apparatus in use and any handles provided for the purpose of operating such apparatus shall be so placed as to be convenient for manual operation at all times.

115. Method of earthing.—Where earthing is necessary in a mine it shall be carried out by connection to an earthing system at the surface of the mine, in a manner approved by the Inspector.

116. Earth or fault detectors.—(1) Earth or fault detectors or recorders which include suitable fault protective devices shall be connected up in every system in a mine to draw immediate attention to any defect in the insulation of the system.

(2) The operation of these instruments and devices shall be recorded daily at the generating station, substation or switch-station.

(3) The effectiveness of such detectors, recorders or devices shall be checked once in three months and the result of such examination or test shall be recorded in the log-sheet kept in the form set out in Annexure XI.

117. Earthing metal, etc.—(1) All metallic sheaths, coverings, handles, joint-boxes, switchgear frames, instrument covers, switch and fuse covers or boxes, all lampholders, (unless efficiently protected by an insulated covering made of fire-resisting material), and the frames and bedplates of generators, transformers and motors (including portable motors), shall be earthed by connection to an earthing system in the manner prescribed in rule 115.

(2) Where cables are provided with a metallic covering constructed and installed in accordance with clause (d) of rule 122, such metallic covering may be used as a means of connection to the earthing system.

(3) All conductors of an earthing system shall have conductivity at all parts and at all joints at least equal to 50 per cent. of that of the largest conductor used solely to supply the apparatus, a part of which it is desired to earth:

Provided that, no conductor of an earthing system shall have a cross-sectional area less than 0.022 sq. in., except in the case of the earthed conductor of a flexible cable used with portable apparatus where the voltage does not exceed 125 volts, or where the cross-sectional area and conductance of the earth-core is not less than that of the largest of the live conductors in the cable.

(4) All joints in earth conductors and all joints in the metallic covering of cables shall be properly soldered or otherwise efficiently made.

(5) No switch, fuse, or circuit-breaker shall be inserted in any earth conductor.

(6) This rule shall not apply (except in the case of portable apparatus) to any system in a mine in which the voltage does not exceed 40 volts.

118. Voltage limits.—Energy shall not be transmitted into a mine at a voltage exceeding 6,600 volts and shall not be used therein at a voltage exceeding 3,300 volts:

Provided that,—

(a) where portable or transportable motors are used, the voltage shall not exceed 650 volts;

(b) where portable motors are used, the voltage shall not exceed 125 volts;

(c) where electric lighting is used and the system employs a mid or neutral point connected with earth, the voltage shall not exceed 125 volts;

(d) where portable hand-lamps are used, the voltage shall not exceed 40 volts;

(e) Where any circuit is used for the remote control or electrical interlocking of apparatus the circuit voltage shall not exceed 40 volts if the circuit contains any plug-and-socket-coupling other than of an approved bolted type.

119. Motors and their transformers.—(1) Where energy is distributed at high voltage, it shall not be used without transforming to medium or low voltage, except in the case of,—

(a) fixed machines in which the high voltage parts are stationary, and

(b) motors, where the capacity exceeds 20 H.P.

(2) Where energy is transformed, suitable provision shall be made to guard against danger by reason of the lower voltage apparatus becoming accidentally charged above its normal voltage by leakage from, or contact with the higher voltage apparatus.

120. Switchgear and terminals.—Switchgear and all terminals, cable-ends, cable-joints and connections to apparatus shall be totally enclosed, and shall be so constructed and installed as to comply with the following requirements:—

(a) all parts shall be of mechanical strength sufficient to resist rough usage;

(b) all conductors and contact areas shall be of adequate current-carrying capacity and all joints in conductors shall be properly soldered or otherwise efficiently made;

(c) the lodgment of any matter likely to diminish the insulation or affect the working of any switchgear shall be prevented;

(d) all live parts shall be so protected or enclosed as to prevent danger arising from any arc or short-circuit or from the introduction of fire, water, gas or oil;

(e) all live parts shall be so protected and enclosed as to prevent accidental contact therewith by any person;

(f) every switch or circuit-breaker shall be so constructed as to be capable of opening the circuit it controls without danger, and dealing with any short-circuit without risk.

121. Disconnection of supply.—(1) Properly constructed switchgear for disconnecting the supply of energy to a mine or oil-field shall be provided at the surface of the mine or oil-field at a point approved by the Inspector, and, during the time any cable is live, a person authorized to operate the said switchgear shall be available within easy reach thereof.

(2) When necessary in the interests of safety, appropriate apparatus suitably placed, shall be provided for disconnecting the supply from every part of a system.

(3) Where considered necessary by the Inspector in the interests of safety, the apparatus specified in sub-rule (2) shall be so arranged as to disconnect automatically from the supply any section of the system subjected to a fault.

(4) Every motor shall be controlled by switchgear which shall be so arranged as to disconnect the supply from the motor and from all apparatus connected thereto. Such switchgear shall be so placed as to be easily operated by the person authorized to operate the motor.

122. Cables.—All cables, other than flexible cables for portable or transportable apparatus, shall comply with the following requirements:—

(a) All such cables (other than the outer conductor of a concentric system) shall be covered with insulating material and shall be efficiently protected from mechanical damage and supported at sufficiently frequent intervals, and in such a manner as to prevent damage to such cables.

(b) (i) except as provided in clause (c), no cables other than concentric cables or two-core or multi-core cables protected by a metallic covering, or single-core cable comprising all the conductors of a circuit shall be used—

(1) where the voltage exceeds 125 volts, or

(2) when an Inspector considers that there is risk of igniting coal-dust or other inflammable material, and so directs;

(ii) the sheath of metal-sheathed cables and the metallic armouring of armoured cables respectively shall be of a thickness not less than that recommended from time to time by an Institution approved by the Central Government;

(c) where a medium voltage direct current system is used, two single-core cables may be used for any circuit provided that, their metallic coverings are bonded together by earth conductors so placed that the distance between any two consecutive bonds is not greater than 100 feet measured along either cable;

(d) the metallic covering of every cable shall be—

(i) electrically and mechanically continuous throughout;

(ii) earthed, if it is required by sub-rule (1) of rule 117 to be earthed by a connection to the earthing system of conductivity not less than that of the same length of the said metallic covering;

(iii) efficiently protected against corrosion where necessary;

(iv) of a conductivity at all parts and at all joints at least equal to 50 per cent. of the conductivity of the largest conductor enclosed by the said metallic covering; and

(v) where there may be risk of igniting gas, coal-dust, or other inflammable material, so constructed as to prevent, as far as is practicable, the occurrence of open sparking as the result of any fault or leakage from live conductors;

(e) cables and conductors where connected to motors, transformers, switchgear, and other apparatus, shall be installed so that—

(i) they are mechanically protected by securely attaching the metallic covering to the apparatus; and

(ii) the insulating material at each cable end is efficiently sealed so as to prevent the diminution of its insulating properties.

(f) where necessary to prevent abrasion or to secure gas-tightness, properly constructed glands or bushes shall be provided;

(g) unarmoured cables or conductors, shall be conveyed either in metallic pipes or metal casings or suspended from efficient insulators by means of non-conducting material which will not cut the covering and which will prevent contact with any timbering or metal work. If separate insulated conductors are used, they shall be installed at least one and one half inches apart and shall not be brought together except at lamps, switches and fittings.

123. Flexible cables.—(1) Flexible cables for portable or transportable apparatus shall be two-core or multi-core (unless required for electric welding), and shall be covered with insulating material which shall be efficiently protected from mechanical injury. If a flexible metallic covering is used either

as the outer conductor of a concentric system or as a means of protection from mechanical injury, it shall not be used by itself to form an earth conductor for such apparatus, but it may be used for that purpose in conjunction with an earthing core.

(2) Every flexible cable intended for use with portable or transportable apparatus shall be connected to the system and to such apparatus by properly constructed connectors.

(3) At every point where flexible cables are joined to main cables, a switch shall be provided which is capable of entirely disconnecting the supply from such flexible cables.

(4) Every flexible cable attached to a portable or transportable machine shall be examined periodically by the person authorized to operate the machine, and, if such cable is used underground, it shall be examined at least once in each shift by such person. If such cable is found to be damaged or defective, it shall forthwith be replaced by a cable in good condition.

(5) If the voltage of the circuit exceeds low voltage, all flexible cable attached to any portable or transportable apparatus shall be provided with flexible metallic screening or pliable armouring.

(6) All flexible metallic screening or armouring specified in sub-rule (5) shall comply with the provisions of rule 122.

(7) Flexible cable exceeding 300 ft. in length shall not be used with any portable or transportable apparatus:

Provided that, such flexible cable when used with lon-wall coal-cutting machine shall not exceed 600 ft. in length.

(8) Flexible cable, when installed in a mine, shall be efficiently supported and protected from mechanical injury.

(9) Flexible cables shall not be used with apparatus other than portable or transportable apparatus.

(10) Where flexible cables are used they shall be detached or otherwise isolated from the source of supply when not in use, and arrangements shall be made to prevent the energising of such cables by unauthorized persons.

124. Portable and transportable machines.—The person authorized to operate an electrically-driven coal-cutter, or other portable or transportable machine, shall not leave the machine while it is in operation and shall, before leaving the area in which such machine is operating, ensure that the supply is disconnected from the flexible cable which supplies the machine. When any such machine is in operation, steps shall be taken to ensure that the flexible cable is not dragged along by the machine.

125. Sundry precautions.—(1) All apparatus shall be maintained reasonably free from dust, dirt and moisture, and shall be kept clear of obstruction.

(2) All apparatus shall be housed in a room, compartment or box so constructed as to protect the contents from damage occasioned by falling mineral or passing traffic.

(3) Inflammable or explosive material shall not be stored in any room, compartment, or box containing apparatus, or in the vicinity of any apparatus.

(4) Should there be a fault in any circuit, the part affected shall be made dead without delay, and shall remain so until the fault has been remedied.

(5) While lamps are being changed the supply shall be disconnected.

(6) No lampholder shall be in metallic connection with the guard or other metal work of a portable hand-lamp.

(7) (a) The following notices, in Hindi and local language of the district, so designed and protected as to be easily legible at all times, shall be exhibited:—

(i) at all places where electrical apparatus is in use, a notice forbidding unauthorized persons to operate or otherwise interfere with such apparatus;

(ii) at those places in the interior or at the surface of the mine where a telephone or other means of communication is provided, a notice giving full instructions to persons authorized to effect the disconnection at the surface of the mine of the supply of energy to the mine.

(b) All apparatus, including portable and transportable apparatus, shall be operated only by those persons who are authorized for the purpose.

(8) Where a plug-and-socket-coupling other than of bolted type is used with flexible cables an electrical inter-lock or other approved device shall be provided to prevent the opening of the coupling while the conductors are live.

126. Precautions where gas exists.—(1) In any part of a mine or oil-field in which inflammable gas or vapour is normally present or is likely to occur, and in any working adjacent to or approaching any such area, the following additional provisions shall apply in regard to all circuits and apparatus:—

- (a) all signalling or telecommunication circuits shall be constructed, installed, protected, operated and maintained in such a manner as to be intrinsically safe;
- (b) all apparatus, including portable, transportable and telecommunication apparatus, used at or within 300 yards of any working face (and at any other place in the mine if the representation of fire damp content in the general body of the air therein exceeds 0.5 per cent.) shall be so constructed, installed, protected, operated and maintained as to be intrinsically safe;
- (c) the supply shall be disconnected—
 - (i) immediately, if open sparking occurs, and
 - (ii) during the period required for examination or adjustment of the apparatus which would necessitate the exposing of any part liable to open sparking.

The supply shall not be reconnected until the apparatus has been examined by the electrician or one of his duly appointed assistants and until the defect, if any, has been remedied or the necessary adjustment made.

- (d) all electric lamps shall be enclosed in air-tight fittings and all lamp-globes shall be hermetically sealed;
- (e) a flame safety lamp shall be provided and maintained in a state of continuous illumination near all apparatus (including portable or transportable apparatus), which remains energised and where the appearance of the flame of such safety lamp indicates the presence of inflammable gas, the supply to all apparatus in the vicinity shall be immediately disconnected and the incident reported forthwith to an official of the mine.

(2) If, in any part of the mine, the percentage of inflammable gas in the general body of the air is at any time found to exceed one and one quarter, the supply of energy shall be immediately disconnected from all cables and apparatus in the area and the supply shall not be reconnected so long as the percentage of inflammable gas exceeds that amount. Any such disconnection or reconnection of the supply shall be noted in the log-sheet (which shall be maintained in the form set out in the Annexure XI) and shall be reported to the Inspector.

127. Shot-firing.—When shot-firing is in progress adequate precautions shall be taken to protect conductors and apparatus from injury.

(2) Current from lighting or power circuits shall not be used for firing shots.

(3) The provisions of rule 123 shall apply in regard to the covering and protection of shot-firing cables, and adequate precautions shall be taken to prevent such cables touching other cables and apparatus.

128. Signalling.—Where electrical signalling is used—

- (a) adequate precautions shall be taken to prevent signal and telephone wires coming into contact with other cables and other apparatus;
- (b) the voltage used in any one circuit shall not exceed 25 volts; and
- (c) contact-makers shall be so constructed as to prevent the accidental closing of the circuit.

129. Haulage.—Haulage by electric locomotives on the overhead trolley-wire system, at medium or low voltage, and haulage by storage battery locomotives, may be used with the prior consent in writing of the Inspector, and subject to such conditions as he may impose in the interests of safety.

130. Earthing of neutral points.—Where the voltage of an alternating current system exceeds 40 volts, the neutral or mid-point shall be earthed by connection to an earthing system in the manner prescribed in rule 115.

131. Supervision.—(1) An electrician shall be appointed in writing by the owner, agent or manager of a mine or by the agent or the owner of one or more wells in an oil-field to supervise the installation. If necessary for the proper fulfilment of the duties detailed in this rule, one or more assistants to the electrician shall also be appointed in writing by the aforesaid authority.

(2) Every person appointed to operate, supervise, examine or adjust any apparatus shall be competent to undertake the work which he is required to carry out. No person other than the electrician or a competent person acting under his supervision shall undertake any hazardous work where technical knowledge or experience is necessary.

(3) The electrician shall be responsible for the proper performance by himself or by an assistant appointed under sub-rule (1) of the following duties namely:—

(a) the thorough examination of all apparatus (including the testing of earth conductors and metallic coverings for continuity) as often as may be necessary to prevent danger, and

(b) the examination and testing of all new apparatus, and of all apparatus re-erected in the mine before it is put into service in a new position

(4) In the absence of the electrician for more than three days, the owner, agent or manager of the mine or the agent or owner of one or more oil-wells in an oil-field, shall appoint in writing a substitute electrician.

(5) The electrician or the substitute electrician appointed under sub-rule (4) to replace him, shall be personally responsible for the maintenance at the mine or oil-field of a log-book made up of the daily logsheets prepared in the form set out in Annexure XI. The result of all tests carried out in accordance with the provisions of sub-rule (3) shall be recorded in the log-sheet prepared in the form set out in Annexure XI. On receipt of a request from an Inspector of Mines or the Inspector, the log-book shall be produced at any time for examination.

132. Exemptions.—The provisions of rules 110 to 128 both inclusive, and rule 131 shall not apply in any case where, on grounds of emergency or special circumstances, exemption is obtained from the Inspector. In granting any such exemption the Inspector may prescribe such conditions as he thinks fit.

CHAPTER XI

MISCELLANEOUS

133. Relaxation by Government.—(1) The State Government, or where mines, oil-fields or railways are affected the Central Government may, by order in writing, direct that any of the provisions of rules in Chapter IV other than rules 44, 45 and 47, rules 51(1)(a) and (c), 52 and 60 of Chapter V and all rules in Chapters VI, VII, VIII and IX, shall be relaxed generally or in particular case to such extent and subject to such conditions as it may think fit.

(2) The Central Government may, by order in writing, direct that any of the provisions of Chapter X of these rules shall be relaxed in any particular case to such extent and subject to such conditions as it may think fit.

134. Relaxation by Inspector.—(1) An Inspector may, by order in writing, direct that any of the provisions of rules 44, 51(1)(a) and (c), 52(1)(a) to (c), 62(2), 64, 65(1)(b), 65(2), 66, 72 to 74 (inclusive) 77 to 80 (inclusive) and 90 shall be relaxed in any case to such extent and subject to such conditions as he may think fit.

(2) Where the voltage of any system does not exceed 125 volts the Inspector may, by order in writing, direct that any of the provisions of rules, 28 to 33 (inclusive), 35 to 39 (inclusive), 83, 92, 94 to 106 (inclusive), 114 to 117 (inclusive), 120 and 130 shall, in addition to the rules specified in sub-rule (1), be relaxed as regards such system, to such extent and subject to such conditions as he may think fit.

(3) Every relaxation so directed shall be reported forthwith to, and shall be subject to disallowance or revision by the State Government or where the relaxation affects mines, oil-fields or railways, by the Central Government.

135. Supply and use of energy by non-licensee and others.—Where any person other than a non-licensee is supplied with energy by the non-licensee or other person or has his premises for the time being connected to the conductors or plant of a non-licensee or other person, or himself generates energy and uses such energy or part thereof, such person shall be deemed to be a consumer for the purposes of rules 9, 10, 28 to 32 inclusive, 46 to 71, rules 75, 88 and 143 and the non-licensee or other person shall be subject to all the liabilities imposed on a licensee by those rules.

136. Responsibility of Agents and Managers.—Where any person is responsible for the observance of any of these rules, every agent and manager of such person shall also be responsible for such observance in respect of matters under their respective controls.

137. Mode of entry.—All persons entering in pursuance of the Act or these rules, any building which is used as a human dwelling or a place of worship shall, in making such entry, have due regard, so far as may be compatible with the exigencies of the purpose for which such entry is made, to the social and religious usages of the occupant of the building entered.

138. Penalty for breaking seal.—Where, in contravention of rule 57 any seal referred to in that rule is broken—

- (a) the person breaking the seal shall be punishable with fine which may extend to two hundred rupees; and
- (b) the consumer when he has not himself broken the seal shall be punishable with fine which may extend to fifty rupees unless he proves that he used all reasonable means in his power to ensure that the seal should not be broken.

139. Penalty for breach of rule 46.—Where any electrical installation work of the nature specified in sub-rule (1) of rule 46 has been carried out otherwise than—

- (a) under the direct supervision of a person holding a certificate of competency issued by the Central or the State Government under that rule; and
- (b) in the absence of any applicable exemption under the proviso to sub-rule of that rule, by an electrical contractor licensed by the Central or the State Government in this behalf;

the consumer or owner, the contractor (if any), through whom the work was carried out, and the person under whose immediate supervision it was carried out shall each be punishable with fine which may extend to three hundred rupees.

140. Penalty for breach of rule 82.—Where no notice is given under rule 82(1) both the persons proposing and the contractor he engages for erecting a new building or structure, whether permanent or temporary or for making in or upon any building or structure any permanent or temporary addition or alteration, shall be deemed to have committed a breach of rule 82(1) and shall be punishable with fine which may extend to three hundred rupees.

141. Penalty for breach of rules.—Any person other than an Inspector who, being responsible for the observance of any of these rules commits a breach thereof, shall be punishable for every such breach with fine which may extend to three hundred rupees, and in the case of a continuing breach with a further fine which may extend to fifty rupees, for every day after the first during which the breach has continued.

142. Application of rules.—Subject to the provisions of sub-section (2) of section 58, these rules shall be binding on all persons, companies and undertakings to whom licences have been granted or with whom agreements have been made by or with the sanction of Government for the supply or use of electricity before the commencement of the Act.

143. Repeal.—The Indian Electricity Rules, 1937 are hereby repealed:

Provided that, any order made, notification issued or anything done or any action taken under any of the said rules shall be deemed to have been made, issued, done or taken under the corresponding provisions of the rules.

ANNEXURE I

[See clause (c) of sub-rule (1) of rule 2.]

SPECIFICATION RELATION TO THE DEPOSITION OF SILVER

The electrolyte shall consist of a solution of from 15 to 20 parts by weight of silver nitrate in 100 parts of distilled water. The solution must only be used once, and only for so long that not more than 30 per cent. of the silver in the solution is deposited.

The anode shall be of silver, and the cathode of platinum. The current density at the anode shall not exceed 1/5 ampere per square centimeter and at the cathode 1/50 ampere per square centimeter.

Not less than 100 cubic centimeters of electrolyte shall be used in a voltmeter.

Care must be taken that no particles which may become mechanically detached from the anode shall reach the cathode.

Before weighting, any traces of solution adhering to the cathode must be removed and the cathode dried.

ANNEXURE II

[See sub-rule (1) of rule 7.]

SCALE OF FEES FOR COMPARISON WITH THE GOVERNMENT OF INDIA STANDARDS REFERRED TO IN SUB-RULE (1) OF RULE 2.

	Rs.
For an instrument intended to be used as a sub standard and submitted for special examination and testing	80
If required to be kept under observation for a period longer than one month, for each additional month or part of a month	40
For determining a resistance of standard form to highest accuracy obtainable at one temperature	20
For determining the E.M.F. of a standard cell to highest accuracy obtainable at one temperature	15

NOTE 1.—The instruments and apparatus under test are to be delivered at and removed from the Government Electrical Laboratory, Bhowanipore, Calcutta, free of cost to Government.

NOTE 2.—In tests requiring the expenditure of a considerable amount of power, a charge to cover the actual cost of the energy used, may be made.

ANNEXURE III

(See rule 14).

MODEL FORM OF DRAFT LICENCE UNDER THE INDIAN ELECTRICITY ACT, 1910.

(See Section 3.)

Electric Licence 19

DRAFT LICENCE

Signature of Applicant or
his agent (if any).
Address of Applicant.

THE

ELECTRIC LICENCE 19

Licence for the supply of energy granted by the Government of
under the Indian Electricity Act, 1910]

Licence is hereby granted to ^{1a}
[carrying on business in partnership under the name and style of]—to supply
electrical energy in the area, ^{2a} with the powers and upon the terms and conditions all specified below.

Short title

1. This licence may be cited as "The ^{3a} Electrical Licence, 19",

Interpretation

2. In this licence—

(1) "The Act" shall mean the Indian Electricity Act, 1910.

- (2) The expression "the licensee" shall mean and include the said, ^{4a} and their (or his) assigns; and
- (3) the expression "deposited maps" shall mean the plan of the area of supply hereinafter specified which has been deposited with Government in pursuance of the rules under the Act, which plans are signed for the purpose of identification by the Secretary to the Government of in the Department and by the applicants under the name and style of
- (4) other words and expressions have the same meanings as are assigned to them in the Act or the rules made thereunder.

Security ^{5a}

3. (1) The period within which, under Clause 1(a) of the Schedule to the Act, the licensee shall show that he is in a position fully and efficiently to discharge the duties and obligations imposed on him shall be

(2) The period within which, under clause I(b) of the Schedule to the Act, the licensee shall deposit or secure such sum as therein mentioned, and the sum so to be deposited or secured, shall, unless otherwise ordered by the Government under that clause, be and Rupees respectively.

^{1a} The licensee may be any local authority, company or individual. In the case of firm give names of all the directors or partners.

^{2a} See clause 4.

^{3a} Short title to agree with heading.

^{4a} Names of all the directors or partners as in preamble in the case of a firm.

^{5a} See section 4(1) (c) of the Act and clause I of the Schedule to the Act.

Area of Supply^{6a}

4. The area within which the supply of energy is authorized by this licence (the area of supply under the Act is the whole of the area bounded as follows:—

North—By

East—By

South—By

West—By

the boundaries whereof are delineated in the deposited map.

Power to lay mains outside area of supply^{1b}

5. The licensee may lay down or place electric supply lines for the conveyance and transmission of energy from a generating station situated or to be situated at outside the area of supply to the boundary of the area of supply.

Limits within which the supply of energy is to be compulsory^{2 b}

6. (1) The works to be executed to the satisfaction of the Government under clause IV of the Schedule to the Act are the following, namely:— ^{3b}

(2) If the licensee fails to comply with the provisions of sub-clause (1), the licence may be revoked."

^{6a} The area for which each local authority is constituted should be distinctly marked or coloured. See rule 11(b).

^{1b} This clause should be retained only where the licensee is to supply energy from a generating station outside the area of supply. Where power to cross an intervening area is sought under section 3(1) of the Act enter details here.

^{2b} See Section 3(2) (d) of the Act.

^{3b} It is open to the licensee to propose a "compulsory area" or the State Government to make provision for such an area. Ordinarily it will be sufficient to enter here the names of "compulsory street" in which the licensee will lay distributing mains. If no compulsory works are specified in the licence, the State Government may subsequently direct that works are to be executed; See clause IV of Schedule to the Act.

*See note to sub-clause (1) of this clause.

Nature of Supply

7. (1) The nature of the supply shall be _____ or such other as the State Government may allow.

Breaking up of streets, railways and tramways ^{4b}

8. The licensee is specially authorized to open and break up the soil and pavement of the following streets or parts of streets which are not repairable by the Government or by a local authority, and of the following railways and tramways or parts of railways and tramways, namely:—

- (a) Streets.
- (b) Railways. ^{5b}
- (c) Tramways. ^{5b}

Purchase of undertaking

9. (1) The option of the purchase given by sub-section (1) of section 7 of the Act shall be exercisable on the expiry of a period of 20 years, ^{1c} from the date of the notification of this licence and on the expiry of every subsequent period of 10 years (and the terms ^{2c} of such purchase shall be _____). The percentage of the value to be determined in accordance with and for the purpose of sub-section (1) of section 7 of the Act of the lands, buildings, works, materials and plant of the licensee therein mentioned to be added under the second proviso of that sub-section to such value on account of compulsory purchase shall be _____ per cent.

(2) In accordance with clause (d) (ii) of sub-section (2) of section 3 of the Act, it is hereby declared that the generating station to be used in connection with the undertaking shall/shall not form part of the undertaking for the purpose of purchase under section 5 or section 7. ^{3c}

Additions to, variations from, and exceptions from the schedule to the Act ^{4c}

10. (1) In pursuance of clause (f) of sub-section (2) of section 3 of the Act, it is hereby expressly declared that the provisions contained in the Schedule to the Act shall for the purposes of this licence be supplemented by the addition of the following clauses, namely:— ^{5c}

(2) In pursuance of clause (f) of sub-section (2) of section 3 of the Act, it is hereby expressly declared that the clauses of the Schedule to the Act mentioned below shall be varied in the manner hereinafter indicated, namely:—

(3) In pursuance of clause (f) of sub-section (2) of section 3 of the Act, it is hereby expressly declared that clause(s) _____ of the Schedule to the Act shall be excepted from incorporation in this licence.

Note.—In the preparation of a draft licence the above model form may be varied, or added to, by the applicant so far as the Act and rules admit.

Rules Nos. 11 to 15 inclusive, as to applications for licences, should be consulted. In drawing up a draft licence the attention of the applicant is more particularly directed to the following sections of the Act, *viz.*, 3, 4, 7, 10, 11, 12, 21, 22, 23, 27, 51, and 57; the powers under section 51 can only be conferred after the grant of the licence.

In the case of licences for bulk supply, see clause IX of the Schedule to the Act and the proviso to clause (f) of sub-section (2) of section 3 of the Act, also clause (b) of section 10 of the Act.

^{4b} This clause to be omitted if no such powers are required in the licence. See section 12(5) of the Act and proviso to the same. Powers can be obtained subsequently; see rule 23.

^{5b} In ordinary cases the level-crossings or points at which interference is proposed must be specified.

^{1c} The periods after which an option to purchase arises may be less than 20 and 10 years, respectively.

^{2c} The terms must not differ from those laid down in the Act unless the powers of section 10 are invoked to modify for cancel them.

^{3c} The generating station or stations belonging to the licensee should ordinarily be included except where they form part of a traction undertaking previously authorised.

^{4c} To be omitted if not required in any draft licence.

^{5c} The latter part of the clause may require modification according to the circumstances

ANNEXURE IV

Summary of Technical and Financial Particulars for the year ended 31st March, 19

A. TECHNICAL—

1. Year of working.
2. Area of supply in square miles.
3. Approximate population in the area of supply.
4. Installed capacity :
 - (a) Generating plant (excluding retired plant.)

(i) Hydraulic	kW
(ii) Steam	kW
(iii) Internal combustion	kW
Total :	kW
 - (b) Receiving Station :

Transformers	kVA
--------------	-----
5. Maximum Demand on the system kW
6. kWh generated :

(i) Hydraulic	kWh
(ii) Steam	kWh
(iii) Internal combustion	kWh
Total :	kWh
7. kWh used for Generating Station Auxiliaries.
8. kWh purchased from other agencies.
9. kWh available for sale (6-7+8).
10. kWh sold.
11. Fuel :
 - (a) (i) Coal consumed in tons.
 - (ii) Average calorific value per lb. of coal consumed.
 - (iii) Average cost of coal per ton.
 - (b) (i) Oil consumed in tons.
 - (ii) Average calorific value per lb. of oil consumed.
 - (iii) Average cost of oil per ton.
12. Lubricating oil :
 - (a) Quantity consumed (gallons)
 - (b) Average cost per gallon.
13. Consumers : No. Connected load K.W.
 - (a) Domestic or Residential.
 - (b) Commercial.
 - (c) Industrial :
 - (i) Low & medium voltage.
 - (ii) High and/or Extra High voltage.
14. Segregation of kWh sold—
 - (i) Domestic or Residential :
 - (a) Lights* and Fans.
 - (b) Heating and small Power.

B. FINANCIAL—

1. Share capital (paid-up).
2. Loan Capital (other than loans advanced by the State Electricity Board).
3. Licensee's Capital (1+2).
4. Total Capital Expenditure.
5. Capital Base [*Vide* Clause XVII-1 of the Sixth Schedule to the Electricity (Supply) Act, 1948.]
6. Reasonable Return [*Vide* Clause XVII-9 of the Sixth Schedule to the Electricity (Supply) Act, 1948].
7. Clear Profit [*Vide* Clause XVII-2 of the Sixth Schedule to the Electricity (Supply) Act, 1948].
8. Maximum sum permissible for distribution to share and Debenture holders [*vide* Clause II (1) of the Sixth Schedule to the Electricity (Supply) Act, 1948].
9. Actual sum available for distribution to share and debenture holders.
10. Item (9) expressed as a % of item (3).
11. Item (9) expressed as a % of item (4).
12. Item (9) expressed as a % of item (5).
13. Dividend declared for the year.
 - (a) On Ordinary Shares.
 - (b) On Preference Shares.
14. Market Price of Shares :—
 - (a) Ordinary Shares.
 - (b) Preference Shares.
15. Operating Revenues (*vide* Statement III—Annexure V).
16. Operating Expenses including depreciation (*vide* Statement IV—Annexure V).
17. Depreciation set apart for the year (*Vide* Statement V—Annexure V).
18. Revenue per kWh sold (overall) (Item 15 ÷ kWh sold).
19. Cost per kWh sold (overall). (Item 16 ÷ kWh sold).
20. Revenue per kWh sold—
 - (i) Domestic or Residential :
 - (a) Lights* and Fans.
 - (b) Heating and small Power.
 - (ii) Commercial :—
 - (a) Lights* and Fans.
 - (b) Heating and small Power.

* Including unmetered supply.

A. TECHNICAL.—*contd.*

(ii) Commercial :

(a) Lights* and Fans.

(b) Heating and small Power.

(iii) Industrial Power :

(a) Low and medium voltage.

(b) Voltage.

(iv) Public Lighting.

(v) Traction.

(vi) Irrigation.

(vii) Public Water-Works and Sewage Pumping.

(viii) Supplies in bulk to Distributing Licenceses.

B. FINANCIAL.—*contd.*

(iii) Industrial Power :

(a) Low and medium voltage.

(b) High voltage.

(iv) Public Lighting.

(v) Traction.

(vi) Irrigation.

(vii) Public Water-Works and Sewage Pumping.

(viii) Supplies in bulk to Distributing Licenceses.

* Including unmetered supply.

ANNEXURE V.

STATEMENT I.

ELECTRIC LICENCE DATED.....

NAME OF UNDERTAKING..... YEAR OF OPERATION.....

STATEMENT OF SHARE AND LOAN CAPITAL FOR THE YEAR ENDED 31 March 19

(Applicable to Licensees other than Local Authority Licensees).

Description of Capital	Balance at the beginning of the year	Receipts during the year	Redeemed during the year	Balance at the end of the year	Remarks
1	2	3	4	5	6
A.—SHARE CAPITAL	Rs.	Rs.	Rs.	Rs.	
<i>Authorised Capital.</i>					
....Ordy. Shares of Rs. each					
....%Pref. Shares of Rs. each					
<i>Issued Capital.</i>					
....Ordy. Shares of Rs. each					
....%Pref. Shares of Rs. each					
<i>Subscribed Capital.</i>					
....Ordy. Shares of Rs. each					
....%Pref. Shares of Rs. each					
<i>Called-up Capital.</i>					
....Ordy. Shares of Rs. each					
....% Pref. Shares of Rs. each					
<i>Paid-up Capital.</i>					
....Ordy. Shares of Rs. each					
....%Pref. Shares of Rs. each					
Less calls in arrears.					
Total Paid up Capital ..					

Description of loans raised from time to time	Principal sanctioned	Rate %	Period of payment			Amount of loan redeemed to beginning of the year	Amount of loan redeemed during the year	Total loan capital redeemed to the end of the year	Balance of loan outstanding at the end of the year	Remarks
			From		Amount of Annual instalment					
I	2	3	4	5	6	7	8	9	10	11
Total loans raised for the electrification Scheme	Rs.				Rs.	Rs.	Rs.	Rs.	Rs.	

STATEMENT I-A (2)

STATEMENT OF LOAN AND OTHER CAPITAL FOR THE YEAR ENDED 31 March 19

Particulars	Balance at the beginning of the year	Received during the year	Redeemed during the year	Balance at the end of the year	Remarks
I	2	3	4	5	6
A.—LOAN CAPITAL.	Rs.	Rs.	Rs.	Rs.	
Amount of balance of loan outstanding					
Grants and Advances made from the General Funds of the Municipality					
Grant in aid from Government					
<i>Total Capital</i>					
B.—CAPITAL RESERVE.					
Loan Redemption Fund					
Other items to be specified					
<i>Total Capital Reserve</i>					
C.—OTHER CAPITAL.					
Consumers' contributions for service connections after the commencement of the Electricity (Supply) Act, 1948					
Special items to be specified					
<i>Total Other Capital</i>					
Total Capital Raised and Appropriated (A+B+C)					

STATEMENT II

STATEMENT OF CAPITAL EXPENDITURE FOR THE YEAR ENDED 31 March 19

	Balance at the beginning of the year	Additions during the year	Retirements during the year vide Col. 3 Statement II-A	Balance at the end of the year	Remarks
I	2	3	4	5	6
A.—Intangible Assets.	Rs.	Rs.	Rs.	Rs.	
1. Preliminary expenses					
2. Cost of licence					
3. Other expenses e. g., cost of conversion from D. C. to A. C., change of frequency etc.					
<i>Total Intangible assets</i>					

STATEMENT II- *Contd.*

1	2	3	4	5	6
B.—HYDRAULIC POWER PLANT.					
1. Land & Rights
2. Buildings and structures
3. Reservoirs, dams, waterways & pipe lines
4. Water Wheels, Generators & ancillary equipment
5. Miscellaneous power plant equipment
6. Other Civil Works
Total Hydraulic Power Plant
C.—STEAM POWER PLANT					
1. Land & Rights
2. Buildings and structures
3. Boiler plant and equipment
4. Engines, Turbines, Generators & ancillary equipment
5. Miscellaneous power plant equipment
6. Other Civil Works
Total Steam Power Plant
D.—INTERNAL COMBUSTION POWER PLANT.					
1. Land & Rights
2. Buildings and structures
3. Engines, Generators and ancillary equipment
4. Miscellaneous power plant equipment
Total Oil or Gas Power Plant
E.—TRANSMISSION PLANT (EXTRA HIGH VOLTAGE)					
1. Land & Rights
2. Buildings and structures
3. Station equipment
4. Towers, Poles, Fixtures, Overhead conductors and devices
5. Underground cables and devices
Total Transmission Plant (E.H.V.)

STATEMENT II—Contd.

I	2	3	4	5	6
F.—DISTRIBUTION PLANT—HIGH VOLTAGE.					
1. Land and Rights
2. Buildings and Structures
3. Sub-station equipment
4. Line transformers
5. Towers, Poles, Fixtures, Overhead conductors and devices
6. Underground cables and devices
7. Service lines
8. Meters and ancillary equipment
Total Distribution Plant (H.V.)
G.—DISTRIBUTION PLANT MEDIUM AND LOW VOLTAGE.					
1. Land and Rights
2. Poles, Fixtures, Overhead conductors & devices
3. Underground cables & devices
4. Service lines
5. Meters and ancillary equipment
TOTAL—DISTRIBUTION PLANT (M. & L. V.)
H.—PUBLIC LIGHTING.					
1. Street & signal lighting systems
J.—GENERAL EQUIPMENT. (Not allocated to other sub-heads)					
1. Land & Rights
2. Buildings and structures
3. Office furniture and equipment
4. Transportation equipment
5. Laboratory and meter testing equipment
6. Tools and work equipment
7. Communication equipment
8. Miscellaneous equipment
TOTAL—GENERAL EQUIPMENT
TOTAL—CAPITAL ASSETS IN USE					

NOTE.—Capital expenditure on items F7 and G4 should include contributions made by consumers towards service line charges.

STATEMENT II—A

STATEMENT SHOWING THE WRITTEN DOWN COST OF FIXED ASSETS
RETIRED ON ACCOUNT OF OBSOLESCENCE, INADEQUACY,
SUPERFLUITY ETC.

FOR THE YEAR ENDED 31 March 19 .

[illegible]

STATEMENT III.

STATEMENT OF OPERATING REVENUES FOR THE YEAR
ENDED 31 March 19 .

Particulars of receipts	Corresponding amount for the previous year of account	Amount for the year of account	Remarks
1	2	3	4
A.—NET REVENUE BY SALE OF ELECTRICITY FOR CASH AND CREDIT.	Rs.	Rs.	
1. <i>Domestic or residential.</i>			
(a) Lights and Fans			
(b) Heating and Small power.			
2. <i>Commercial.</i>			
(a) Lights and Fans			
(b) Heating and Small power.			
3. <i>Industrial.</i>			
(a) Low & Medium voltage			
(b) High voltage			
4. Public Lighting			
5. Traction			
6. Irrigation			
7. Public Water Works & Sewage Pumping			
8. Supplies in bulk to distributing licensees			
TOTAL—RECEIPTS BY SALE OF ELECTRICITY	..		

STATEMENT III—Contd.

I	2	3	4
B.—MISCELLANEOUS REVENUE FROM CONSUMERS.			
1. <i>Rentals from</i>			
(a) Meters	
(b) Electric motors, fittings, appliances and other apparatus hired to consumers	
2. Service connection fees	
3. Public Lighting Maintenance	
TOTAL—MISCELLANEOUS RECEIPTS FROM CONSUMERS	
C.—OTHER REVENUES.			
1. Sale of stores	
2. Repair of lamps and other apparatus	
3. Commission for the collection of electricity duty	
4. Other miscellaneous items (to be specified)	
TOTAL—OTHER RECEIPTS	
TOTAL—OPERATING REVENUES	
Deduct—			
Total Operating Expenses as per St. IV
Net surplus or deficit carried to the Net Revenue & Appropriations a/c—St. X.	

STATEMENT IV

STATEMENT OF OPERATING EXPENSES FOR THE YEAR ENDED 31 March, 19

Particulars of expenses	Corresponding amount for the previous year of account	Amount for the year of account	Remarks	
I	2	3	4	
A.—HYDRAULIC POWER GENERATION.	Rs.	Rs.	Previous year	Current year
(Capacity of plant in operation during the year.....kW)			kWh	kWh
(a) Operation—				
1. Water for power	..	..	Gross generation :	
2. Lubricants and other Consumable stores	..	..	Less	
3. Station supplies and miscellaneous expenses	..	..	Used on Works.	
4. Proportion of salaries, allowances, etc. of Engineers, Superintendents, Officers, Supervisory and other staff	..	..	Net Generation	
5. Wages and Gratuities to labour	..	..
TOTAL OPERATION	..	..

STATEMENT IV—Contd.

1	2	3	4	
(b) Maintenance.—				
1. Salaries for supervisory staff		
2. Reservoirs, dams, water-ways and pipe lines		
3. Water wheels, Generators & accessory equipment		
4. Buildings & Structures		
5. Other Civil Works		
TOTAL—MAINTENANCE		
(c) Depreciation.—				
Depreciation on Hydraulic Power Generating Plant and Equipment		
TOTAL—HYDRAULIC POWER GENERATION EXPENSES.		
B.—STEAM POWER GENERATION.				
(Capacity of plant in operation during the year....kW)				
(a) Operation.				
1. Fuel excluding sale proceeds of steam, ashes etc.		
2. Lubricants and other consumable stores		
3. Water (if purchased separately)		
4. Station supplies and miscellaneous expenses		
5. Proportion of salaries, allowances, etc. of Engineers, Superintendents, Officers, supervisory & other staff		
6. Wages and Gratuities to labour		
TOTAL—OPERATION		
(b) Maintenance.—				
1. Salaries for supervisory staff		
2. Boilers, steam pipes and accessory equipment		
3. Engines, Turbines, Generators & accessory equipment		
4. Buildings and Structures		
TOTAL—MAINTENANCE.		

STATEMENT IV —Contd.

1	2	3	4	
(c) <i>Depreciation.</i> Depreciation on Steam Power Generating Plant and Equipment		
TOTAL—STEAM POWER GENERATION Expenses		
C.—INTERNAL COMBUSTION POWER GENERATION.			Previous year	Current year
(Capacity of plant in operation during the year.....kW)			kWh	kWh
(a) <i>Operation.</i> —			Gross generation Less Used on works	
1. Fuel	Net gener- ation	
2. Lubricants and other consumable stores		
3. Water (if purchased separa- tely)		
4. Station supplies and mis- cellaneous expenses		
5. Proportion of salaries, allow- ances, etc. of Engineers, Superintendents, Officers, supervisory and other staff		
6. Wages and Gratuities to labour		
TOTAL—OPERATION		
(b) <i>Maintenance.</i>				
1. Salaries for supervisory staff		
2. Engines, Generators and accessory equipment		
3. Buildings and Structures		
TOTAL—MAINTENANCE.		
(c) <i>Depreciation.</i>				
Depreciation on Internal Com- bustion power generating Plant and Equipment		..		
TOTAL—INTERNAL COMBUSTION POWER GENERATION EX- PENSES		
D.—POWER PURCHASED.				
TOTAL—PRODUCTION EXPENSES A+B+C+D	Previous year kWh	Current year kWh

STATEMENT IV—Contd.

1	2	3	
E.—TRANSMISSION (EXTRA HIGH VOLTAGE).			<div>Previous year</div> <div>Current year</div>
			<div>kWh</div> <div>kWh</div>
Operation, Maintenance and Depreciation.			<div>Total available for sale</div> <div>Less Actual sales</div> <div>Loss in transmission & distribution</div>
1. Proportion of salaries, allowances etc. of Engineers, Superintendents, Officers, supervisory and other staff .			
2. Wages & Gratuities to station labour . . .			
3. Wages & Gratuities to labour on lines	
4. Supplies and miscellaneous expenses for stations	
5. Supplies and miscellaneous expenses for lines	
6. Buildings & structures	
7. Depreciation on Transmission Plant & Equipment	
TOTAL—TRANSMISSION EXPENSES (E.H.V.)	
F.—DISTRIBUTION (HIGH VOLTAGE).			
Operation, Maintenance and Depreciation.			
1. Proportion of salaries, allowances etc. of Engineers, Superintendents, Officers, supervisory & other staff	
2. Wages & Gratuities to station labour	
3. Wages & Gratuities to labour for H. V. mains	
4. Supplies and miscellaneous expenses for stations	
5. Supplies and miscellaneous expenses for mains	
6. Buildings & structures	
7. Depreciation on H. V. Distribution Plant and Equipment	
TOTAL—DISTRIBUTION (H. V.) EXPENSES	

STATEMENTS IV—*concd.*

1	2	3	4
G.—DISTRIBUTION (MEDIUM AND LOW VOLTAGE).			
Operation, Maintenance and Depreciation.			
1. Proportion of salaries, allowances, etc. of Engineers Superintendents, Officers, supervisory & other staff	
2. Wages & gratuities to staff	
3. Supplies and miscellaneous expenses	
4. Depreciation on M. & L.V. Distribution plant & Equipment	
TOTAL—DISTRIBUTION (M. & L.V. EXPENSES)	
H.—PUBLIC LIGHTING.			
Operation, Maintenance & Depreciation.			
1. Operation & Maintenance	
2. Renewal of lamps	
3. Depreciation on P. L. system & equipment	
TOTAL—PUBLIC LIGHTING EXPENSES	
J.—CONSUMERS' SERVICING, METER READING, BILLING, COLLECTING, ACCOUNTING, SALES PROMOTING, ETC.			
1. Proportion of salaries, allowances, etc. of Engineers, Secretary, Accountants, other Officers etc.	
2. Meter reading and inspection	
3. Billing, Collecting and accounting	
4. Exhibitions, Demonstrations and advertisements	
5. Merchandising, servicing and contract work	
6. Miscellaneous expenses	
7. Depreciation on general assets & equipment, which are not allocated to other subheads	
TOTAL—CONSUMER SERVICING ETC.	

STATEMENT IV—*Contd.*

1	2	3	4
K.—GENERAL ESTABLISHMENT CHARGES.			
1. Proportion of salaries, allowances etc. of general officers, executives etc.			
2. Salaries, wages, gratuities etc. of general office staff			
3. Contributions to Local Authority administration for supervision			
4. Travelling and other expenses of officers and staff			
5. Rents and Wayleaves			
6. Rates & Taxes			
7. General Office and Show-room maintenance and supplies			
8. Repairs to office buildings, staff quarters, furniture & fixtures office equipment etc. & maintenance			
9. Depreciation of office & general buildings, furniture etc. not allocated to other subheads			
10. Audit Services :—			
(a) Auditor of company			
(b) Auditor appointed under the provisions of the Act			
11. Legal Services			
12. Insurance expenses			
13. Contributions to Provident Fund and/or Staff Pension, Bonus, Gratuity etc.			
TOTAL—GENERAL ESTABLISHMENT CHARGES			

ZZ

STATEMENT IV—Contd.

1	2	3	4
L.—OTHER CHARGES.			
1. Interest paid and accrued on :—			
(a) Loans advanced by State Electricity Board			
(b) Depreciation fund			
(c) Consumers' security deposits			
2. Bad debts written off			
3. Other Items to be specified			
TOTAL—OTHER CHARGES			
M.—MANAGEMENT EXPENSES			
1. Directors' fees and expenses and Debenture Trustees' fees, if any			
2. Salary and/or allowance and/or honorarium to the Chief Executive (Chairman or Managing Director or Manager) appointed, if authorised by articles under Clause 72, Table A of the Indian Companies Act in case of Company Licensees, Partners, or Proprietor, in case of other licensees			
3. Managing Agents' ordinary remuneration			
4. Managing Agents' office allowance			
TOTAL—MANAGEMENT EXPENSES			
TOTAL—OPERATING EXPENSES; TRANSFERRED TO STATEMENT III			

NOTE (1).—No apportionment of expenses under sub-head 'M' be made to any of the salary items under A-(a)4, B-(a)5, C-(a)5, E-1, F-1, G-1, J-1 and K-1 which shall include the proportion of salaries and allowances of persons solely employed for the purpose of the undertaking and of the engineering staff employed by the Managing Agents under the provision of sub-para (3) of para XIII of the Sixth Schedule to the E. (S) Act, 1948.

(2) The amount of proportion of salaries allowances etc. solely employed for the purpose of the undertaking included in this statement shall exclude expenses charged to capital under either establishment or supervision charges.

(3) Managing Agents in this context refer to the Managing Agents appointed under section 87 of the Indian Companies (Amendment) Act, 1936.

STATEMENT V
STATEMENT OF PROVISION FOR DEPRECIATION FOR THE YEAR ENDED
31ST MARCH, 19 .

Description of assets in Groups as per Statement II.	Balance of accrued depreciation brought forward from last account	Balance of arrears of depreciation brought forward from last account	Additions to the fund during the year of account				Withdrawals during the year (Purpose to be indicated in the remarks column)	Balance of accrued depreciation carried forward into next account	Balance of arrears of depreciation carried forward into next account	Remarks
			Interest at 4% per annum on the balance at the beginning of the year under paragraph VI(1) of the Sixth Schedule to the Electricity (Supply) Act, 1948	Depreciation provided for the year	Arrears of depreciation written off during the year	Total				
I	2	3	4	5	6	7	8	9	10	11
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
A. Hydraulic Power Plant										
B. Steam Power Plant										
C. Internal Combustion Power Plant										
D. Transmission Plant										
Extra High Voltage										
E. Distribution Plant										
High Voltage										
F. Distribution Plant										
Medium & Low Voltage										
G. Public Lighting										
H. General Equipment										
Total										

NOTE.—A sum of Rs. of the aggregate of the provision for depreciation has been invested in securities under the provisions of paragraph XVII (1) (d) of the Sixth Schedule to the E (S) Act, 1948.

STATEMENT VI
STATEMENT OF CONTINGENCIES RESERVE FOR THE YEAR ENDED
31ST MARCH 19 .

Particulars	Balance at the beginning of the year	Additions during the year				Withdrawals during the year			Balance at the end of the year	Remarks
		Interest on Contingencies Reserve Investment account	Appropriations during the year	Additions under paragraph IX of the Sixth Schedule to the E. (S) Act, 1948 vide Col. 6 St. II-A	Total	Instalment under sub-para (3) of paragraph VII of the Sixth Schedule to the Elec. (Supply) Act, 1948 vide Col. 7 Statement II-A	Expenses and/or compensation under paragraph V of the Sixth Schedule to the Elec. (Supply) Act, 1948	Total		
I	2	3	4	5	6	7	8	9	10	11
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	

NOTE.—A sum of Rs. of the balance of the Contingencies Reserve Fund has been invested under the provisions of paragraph IV (2) of the Sixth Schedule to the L(S) Act, 1944.

STATEMENT VII

STATEMENT OF TARIFFS AND DIVIDENDS CONTROL
RESERVE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 19 .

Particulars	Balance at the beginning of the year	Appropriation during the year of account	Withdrawals during the year of account	Balance at the end of year	Remarks
1	2	3	4	5	6
	Rs.	Rs.	Rs.	Rs.	

STATEMENT VIII

STATEMENT OF CONSUMERS' REBATE RESERVE ACCOUNT
FOR THE YEAR ENDED 31ST MARCH, 19 .

Particulars	Balance at the beginning of the year	Distributed to consumers during the year	Appropriated during the year	Balance at the end of the year	Remarks
1	2	3	4	5	6
	Rs.	Rs.	Rs.	Rs.	

STATEMENT IX

STATEMENT OF SPECIAL APPROPRIATIONS PERMITTED
BY STATE GOVERNMENT FOR THE YEAR ENDED 31ST MARCH 19 .

Particulars giving reference to the sanction of the State Govt. permitting the appropriation.	Balance at the beginning of the year	Additions by way of appropriation during the year	Transfers by way of reappropriation during the year, details to be given in the remarks Column	Balance at the end of the year	Remarks
1	2	3	4	5	6
	Rs.	Rs.	Rs.	Rs.	

STATEMENT X.

NET REVENUE AND APPROPRIATIONS ACCOUNT FOR
THE YEAR ENDED 31ST MARCH, 19 .

Corres- ponding figures of previous year	Particulars	Amount	Corres- ponding figures of previous year	Particulars	Amount
1	2	3	4	5	6
Rs.		Rs.	Rs.		Rs.
	1. To balance of loss brought forward from last account.			1. By Balance of profit brought forward from last account.	
	2. To net operating deficit as per Statement III.			2. By net operating surplus as per Statement III.	
	3. To appropriations in case of Local Authority Licensees :			3. By interest on securities and investments other than contingencies reserve fund	
	(a) Interest of loan capital			4. By other receipts (non-operating) e. g., rents less outgoings not otherwise provided for, transfer fee etc., to be specified.	
	(b) Instalment of redemption of loan capital.			By Balance of loss carried over to next account.	
	(c) General rates of the Local Authority.				
	4. To taxes on income and profits paid				
	5. To instalment of write-down in respect of intangible assets				
	6. To instalment of contribution towards arrears of depreciation, as per Statement V Column 6 (Total).				
	7. To contribution towards Contingencies Reserve, as per Statement VI				
	8. To appropriation to Tariffs & Dividends Control Reserve, as per Statement VII				
	9. To appropriation to Consumers Rebate Reserve, as per Statement VIII.				
	10. To other special appropriations permitted by the State Government, as per Statement IX.				
	11. To appropriation towards interest paid and accrued and dividends paid and payable.				
	(a) Interest on debentures.				

1	2		3	4	5	6
	(b) Interest on other secured loans (c) Interest on unsecured loans, advances, deposits, bank overdrafts etc. (d) dividends on preference share capital (e) Dividends on ordinary share capital To Balance of profit carried over to next account.					

STATEMENT XI.

GENERAL BALANCE SHEET AS ON 31st March 19.....

Corresponding figures of previous year	Particulars	Amount	Corresponding figures of previous year	Particulars	Amount
1	2	3	4	5	6
Rs.	1. Capital raised and appropriated <i>vide</i> Statement I or I-A <i>Reserves & Surplus.</i> 2. Non-statutory Reserve 3. Contingencies Reserve fund as per Statement VI 4. Tariffs & Dividends control Reserve as per Statement VII. 5. Consumers' Rebate Reserve as per Statement VIII 6. Special appropriations (as permitted by the State Govt.) reserve as per Statement IX 7. Balance of Net Revenue and Appropriations account as per Statement X. <i>Current Liabilities & Provisions</i> 8. Balances due on construction of plant, Machinery etc. 9. Creditors on open accounts (as per schedule attached) 10. Consumers' security deposits	Rs.	Rs.	1. Capital amount expended on Works in use—Statement II. <i>Less.—</i> Accumulated provisions for depreciation—Statement V <i>Fixed Assets</i> 2. Balance of written down cost of obsolete inadequate etc. assets—Statement II-A. <i>Current Assets</i> 3. Capital works in progress 4. Stores and materials in hand :— (a) Fuel-Coal and/or oil etc. at cost (b) General Stores at or below cost (i) Capital stores materials (ii) Operating stores materials 5. Debtors for amounts paid on account of contracts in course of completion	Rs.

STATEMENT II—Contd.

1	2	3	4	5	6
Rs.		Rs.	Rs.		Rs.
	11. Accounts payable, to be specified			6. Sundry debtors for electricity supplied .	
	12. Temporary accommodations, bank overdrafts and other finances .			7. Other debtors (as per schedule attached)	
	13. Other current and accrued liabilities, to be specified .			8. Accounts receivable to be specified .	
	Contingent liabilities, and outstanding commitments, if any, to be stated on the face of this balance-sheet.			9. Investments in statutory securities at cost :—	
				(a) Contingencies Reserve fund investment	
				(market value on closing date)	
				(b) Depreciation Reserve fund investment (market value on closing date.) .	
				(c) Other investments (market value on closing date).	
				10. Special deposits :	
				(a) In respect of taxation	
				(b) Others, to be specified.	
				11. Balance at Bank.	
				(a) Deposit account .	
				(b) Current account and at Call	
				12. Cash in hand .	
				<i>Debit Balances.</i>	
				13. Net Revenue and Appropriations account Balance at debit thereof—Statement X	
				14. Deferred payments	

ANNEXURE VI

Form of requisition under clause V(4) of the Schedule to the Act

To

Name of Licensee.

*We the undersigned, being owners or occupiers of premises situated in or upon _____ street, within the "area of supply" specified in the Licence, 19 _____, do

†The Government of _____ (the _____ of _____ being charged with public lighting of _____ street, within the area of supply specified in the Licence, 19 _____, do

hereby require you, in pursuance of clause V of the Schedule to the Indian Electricity Act, 1910, to provide, within six months of the date of this requisition, distributing mains throughout the said street§

Dated at

The

day of

19 _____

*In the case of six or more owners or occupiers.

†In the case of State Government or a local authority.

‡The local authority's name will have to be inserted.

§Or such part of the street as may be specified.

ANNEXURE VII

Form of Requisition for supply of energy under Clause VI(5) of the Schedule to the Act.

To

(Name of Licensee)

Sir,

I/We hereby require you, in accordance with clause VI of the Schedule to the Indian Electricity Act, 1910 within one month or within such longer period as the Electric Inspector may allow, from the date of this requisition to supply energy for the premises owned/occupied by me/us, and situate within the area of supply specified in the Licence, 19 _____.

2. Applicant's Name.
Occupation/Designation.
Class of Premises.
House No. and/or
Name of the Premises.

Street Town Village or Taluka
Locality

Owned/Tenanted by

Written permission of the Landlord tendered
Yes or No/Not applicable.

3. The following are my/our requirements:

A. Domestic or No. of Watt- Total Watt-
Residential points age age.

- (a) Lights & Fans.
(b) Heating & Small
Power.

B. Commercial.

- (a) Lights & Fans.
(b) Heating & Small
Power.

C. Industrial Motor and or No. H.P. Total Purpose:
Power apparatus of and H.P. and KW
points KW

- (a) Low Voltage.
(b) Medium voltage.
(c) High voltage.

D. Other purposes.

4. Total connected load applied for.....Watts/kilowatts.

5. This requisition is for—

- (1) A new Service.
(2) A Tapping.

The name and address of the consumer whose service is to be tapped.

His Service No. is

- (3) An extension to my existing installation from Service No.
(4) A re-connection of Service No.
(5) A change of name from Service No.

6. The system of wiring will be.

7. The wiring work will be carried out by :

Name Address

Applicant's signature.

Present address.

Dated the day of 19 .

NOTES.—1. The applicant is requested to complete the clause referring to this requisition and to strike out the clauses which are inapplicable.

2. Under clause VI(1) 1st proviso of the Schedule to the Indian Electricity Act, 1910, the licensee shall not be bound to comply with any such requisition unless and until the person making it—

- (a) within fourteen days after the service on him by the licensee of a notice in writing in this behalf, tenders to the licensee a written contract in the form, approved by the State Government duly

executed and with sufficient security binding himself to take the supply of energy for not less than two years to such amount as will produce at current rates charged by the licensee, a reasonable return to the licensee; and

- (b) if required by the licensee so to do, pays to the licensee the cost of so much of any service line as may be laid down or placed for the purposes of the supply upon the property in respect of which the requisition is made, and of so much of any service line as it may be necessary for the said purposes to lay down or place beyond one hundred feet from the licensee's distributing mains, although not on that property.

3. In lieu of the contract referred to in Note 2(a) above, the licensee is prepared to accept a declaration in the following form, subject to deposit of any required securities by the applicant:

DECLARATION

I/We hereby declare that I/We desire to have and agree with the licensee to take a supply of energy for the above mentioned purposes for a period of not less than two years from the date of commencement of the supply and to be bound by the provisions of clause VI of the Schedule to the Indian Electricity Act, 1910, and by the licensee's charges, appropriate tariffs applicable to me/us and conditions of supply as are from time to time in force.

One rupee stamp.

Applicant's signature.

ANNEXURE VIII

Form of order under sub-rule (4) of rule 5.

To

Licensee, non-licensee, consumer, owner, or occupier.

1. Whereas it appears to me that you have not complied with Rule of the Indian Electricity Rules, 19 (in the following respect,* namely,

you are hereby called upon to comply with the said rule on or before theday of19 and to report compliance in writing to me.

2. An appeal may be filed against this order under sub-rule (4) of Rule 5 of the Indian Electricity Rules within three months of the date on which this order is received by you, but this order must be complied with, notwithstanding such appeal, unless the appellate authority, on or before the date specified in paragraph 1 above, suspends its operation.

Dated at

The

day of

19

Signature.

Electric Inspector

Officer appointed under sub-rule (4) of Rule 5.

*Particulars to be given where necessary.

ANNEXURE IX

*Form of Annual Return for Mines.**See rule 111*

This form must be correctly filled up by the owner, agent or manager and sent to the Inspector not later than the first day of February in every year.

PART A

Name of Mine year ending 19 .

Situation of Mine { State
District

Postal address of Mine

Name and address of owner

Name of Agent

Name of Manager

PART B

1. System of Supply (whether direct current or alternating current).

Voltage of supply.

Periodicity (if alternating current).

Source of Supply.

2. Voltage at which electricity is used for—

Lighting

Power.

3. Particulars of Motors, etc.:—

Power

(a) On surface.

Type H. P./KW of motor/apparatus and voltage	Type of control gear	Location	Purpose of use

(b) In mine.

Type H.P./KW. of motor/apparatus and voltage	Type of Control Gear	Location	Purpose of Use	Ventilation	Percentage of fire damp, if any

Lighting.

Type of light fitting	Wattage	Location	Percentage of fire damp, if any

ANNEXURE X*Form of Annual Return for Oil-fields.*

(See rule 111)

This form must be correctly filled up by the owner, agent or manager, and sent to the Inspector not later than the first day of February of every year.

PART A

Year ending 19

Name of Oil-field

Situation of Oil-field { State
District

Postal address of Oil-field

Name and address of owner

Name of Manager

Name of Under-Manager

PART B.

1. System of Supply (whether direct current or alternating current).
 Voltage of Supply
 Periodicity (if alternating current)
 Source of Supply
2. Voltage at which current is used for—
 Lighting
 Power
3. Particulars of Motors, etc., in use on the field:—

(a) On wells.

No. or other identifying mark of well	Drilling or pumping	Type and H. P. of Motor	No. of lamps and type	Other electrical appliances

(b) Not on wells.

Type and H. P. of Motor	Purpose for which used	Identifying mark on map

4. Other electrical appliances, not included in item 3, in use on the field.

Appliances	Type and size in K.W.	Purpose for which used	Identifying mark on map

ANNEXURE XI

Log Sheet for Mines and Oil-fields.

[See sub-rule (5) of rule 131].

Daily Log sheet for

1. Name of electrician in charge:—

2. Report as to:—

(a) Condition of the insulation of the system:—

(b) Specified defects of insulation (particulars of each failure of apparatus should be given):

(c) Accidents or dangerous occurrence (including any cases of electric shock and any cases of open sparking in apparatus in use in places where rule 126 applies):—

(d) Disconnections and reconnections of the supply as required by rule 126(2).

(e) Examination of earth fault detectors or recorders as provided by rule 116(3).

(f) Examinations of apparatus as provided by rule 131:—

- (i) Routine examinations as required by clause (a) of sub-rule (3) of rule 131.
- (ii) Special examinations* as required by clause (b) of sub-rule (3) of rule 131.

3. Remarks:—

Signed

Examined by

Electrician

Manager.

Note.—This log sheet should be filled in as completely as possible. If for instance, there are no defects of insulation to report, the word "none" should be written in the vacant space.

*State which apparatus has been examined or tested and result.

[No. EL-II-203(12)/III.]

K. L. SAXENA,

Secretary, Central Electricity Board.